Volume LXXIII. New Series. No. 7.

THE AMERICAN FARMER

OLDEST AGRICULTURAL PAPER IN AMERICA:

ESTABLISHED 1819

PUBLISHED ON THE 1ST AND 15TH OF EACH MONTH:

CONTENTS.

APRIL 1, 1892.

THE WEATHER BUREAU OF THE DEPARTMENT OF AGRICULTURE—Mortimer Whitehead.
PROGRESSIVE AGRICULTURE.
SUGAR-BEET CULTURE—Walter Maxwell.
MISCELLANY.
"THE CACTUS"—A Story, by O. H. Lewis.
BEET SUGAR—Prof. H. W. Wiley.
SALT A MEASURE OF CIVILIZATION—Walter Maxwell.
EDITORIALS: The Duty on Wool—Our Politics—The Causes of Decadence and Cure—The Legislature and the Farmers, etc., etc.
HOUSEHOLD.
SHEEP AND WOOL.
THE APIARY.
THE GARDEN.
THE ORCHARD.
STOCK.
POULTRY.
THE DAIRY.
SWINE.
THE MARKETS.
THE FENCE-CORNER.

American Farmer Co.
1729 New York Ave.
Washington, D. C.

GEO. E. HOWARD, DES. & DEL.

A PREMIUM FREE TO EVERY SUBSCRIBER.

The Last Report of the United States Department of Agriculture, Splendidly Illustrated With Maps and Colored Plates.

THE MOST VALUABLE BOOK ISSUED ANNUALLY IS THE REPORT OF THE SECRETARY OF AGRICULTURE.

The last one printed, which is just out, is for the crop year of 1890

It is an octavo volume, bound in cloth, of 612 pages, with four folded maps and 46 full-page colored plates.

The articles embraced in the volume comprise the latest information relative to the Propagation of the Silk Worm; Diseases of Cattle and Swine; Article on Irrigation; Mushroom Culture; Statistics of Cereals and Cotton; Reports of Field Experiments in Treatment of the Disease of Plants; Cultivation of the Apple, Peach and Small Fruits; Article on Nut Culture.

There are many other valuable articles upon kindred subjects of vital interest to the agriculturist, copiously illustrated.

The folded maps and charts show the production of wheat, corn and cotton for 10 years, and the results of artesian irrigation. The best idea of the scope of this magnificent work may be gathered from the following list of the illustrations:

Report of the Chief of the Bureau of Animal Industry:
- Diagram A. Average price of hogs and home consumption of hog products per capita.
- B. Average price of hogs, compared with the total production of hog products per capita, and the price of corn.
- C. Production of corn per capita, and the average price per bushel on farms, December 1.

Report of the Entomologist:
- Plate I. New species of Icerya.
- II. The Leefeld fumigator.
- III. Ceratitis capitata and Nephelodes violans.
- IV. Parasites of Nephelodes and Hæmatobia.
- V. Rose chafer and green-striped maple worm.
- VI. State Capitol at Lincoln, Neb., showing trees defoliated by the green-striped maple worm.
- VII. Black scale and Lucilia cæsar.

Report of the Chief of the Silk Section:
- Plate I. Various races of cocoons.
- II. Various races of cocoons.
- III. Various races of cocoons.
- IV. Pruning of mulberry trees, half-standard tree.
- V. Half-standard mulberry tree.
- VI. Pruning of mulberry trees, dwarf.

Report of the Statistician:
- Map I. Corn (maize). Values and yields per acre.
- II. Wheat. Values and yields per acre.
- III. Cotton. Values and yields per acre.

Report of the Microscopist:
- Plate I. Eight edible mushrooms common to the United States. Second series.
- II. Twelve poisonous mushrooms.
- III. Mushroom beds in cellar.
- IV. Mushroom beds in market gardens.
- V. Mushroom house.
- VI. Microscopic researches in food fats.
- VII. Nitrate of silver test of food and medicinal oils.
- VIII. Nitrate of silver test of food and medicinal oils.
- IX. Nitrate of silver test of food and medicinal oils.
- X. Nitrate of silver test of food and medicinal oils.
- XI. Species of mushrooms.

Report of the Botanist:
- Plate I. Ambrosia trifida.
- II. Hieracium aurantiacum.
- III. Linaria vulgaris.
- IV. Cuscuta trifolii.
- V. Plantago lanceolata.
- VI. Cenchrus tribuloides.
- VII. Pennisetum typhoideum.
- VIII. Eragrostis abyssinica.

Report of the Chief of the Division of Vegetable Pathology:
- Plate I. Hollyhock anthracnose.
- II. Anthracnose of cotton.
- III. Ripe rot of grapes and apples.
- IV. Treatment of pear leaf blight (Bordeaux mixture).
- V. Treatment of pear leaf blight (ammoniacal solution, coppe carbonate).

Report of the Pomologist:
- Plate I. Wild and cultivated pecans.
- II. Pecan tree, in orchard at Ocean Springs, Miss.
- III. Switzer apple.
- IV. Banquet Strawberry.
- V. Brilliant grape.
- VI. Pineapple field at Lake Worth, Fla.
- VII. Zengi.
- VIII. Tsuru.
- IX. Elæagnus pungens.

Report of Agent in Charge of Artesian Investigations:
- Map I. Map showing results of artesian investigations.

READ OUR GRAND OFFER.

We will send this splendid book FREE to anyone sending us a single subscription to THE AMERICAN FARMER for one year. In other words, we send the book and THE AMERICAN FARMER for one year for $1. This is absolutely giving the book away, because the subscription price of THE AMERICAN FARMER alone is $1 per year.

We make this offer for 30 days. Address

THE AMERICAN FARMER CO., Washington, D. C.

THE AMERICAN FARMER.

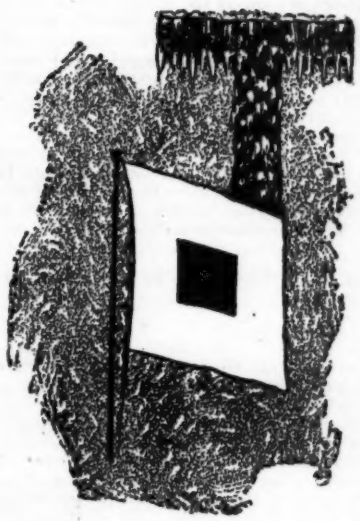
Established 1819. WASHINGTON, D. C., APRIL 1, 1892. Vol. LXXIII. New Series.—No. 7.

THE WEATHER BUREAU

OF THE DEPARTMENT OF AGRICULTURE.

Its Organization, History, and Vast Importance to all Farmers.

BY MORTIMER WHITEHEAD.



HE weather, our friend and our foe, without which we could not live, and with which we sometimes almost die. Here's to the weather.

How much it has to do with our lives, our health, our comfort, our happiness, our successes and our failures.

Those engaged in all trades, professions and callings, the dweller in country, in city, and they "who go down to the sea in ships" have this much in common, and are here "equal before the law" that controls the sunshine or the storm.

Upon "what will the weather be tomorrow" has depended since the world began the fate of individuals, of campaigns, of nations. Had the little fleet of Columbus been destroyed by one of the storms that sometimes sweep the seas o'er which he sailed, the new world would perhaps be a century younger, and the Chicago Exposition would be yet a hundred years in the future.

While most talked about, the weather is not always considered a good topic for conversation, and in some social circles it is prohibited even to the extent of fining anyone who shall introduce it. But it is not always a dry subject, and like the poor it is always with us.

Almost as old as the weather itself is its folk-lore; handed down from the dim past are the "signs" that still control the actions of many, and he who is "weather-wise" in some communities is looked up to as a prophet not without honor even in his own country. The planets, the days of the saints, the ground hog, the goosebone, the hight of the hornet's nest, the thickness of the cornhusk or of the squirrel's fur, the way the sheep looks when it gets up, do the swallows fly high or low; the flight of wild geese, the position in the sky of the new moon, and the old style almanacs are still consulted in many neighborhoods where weather rhymes were once learned as carefully as Bible texts.

"When fleas do very numerous grow,
Then 'twill surely rain or snow."

"Evening red and morning gray
Will put the traveler on his way;
But evening gray and morning red
Will bring down rain upon his head."

"A fly on the nose, we slap and it goes,
If it comes back again it will bring a good rain."

Or if—

"The soot falls down, the squirrels sleep,
The spiders from their cobwebs creep.
Loud quack the ducks, the peacocks cry,
The distant hills are looking nigh.
How restless are the snorting swine,
The busy flies disturb the kine.
Hark! how the chairs and tables crack,
Grandmother's joints are on the rack.
Puss on the hearth with velvet paws,
Sits wiping off her whiskered jaws.
My dog so altered in his taste,
Quits mutton bones on grass to feast.
'Twill surely rain. I see with sorrow
Our work must be put off to-morrow."

Surely they are the "old" probabilities now, and yet they were not all absurd; for animals, like people, are affected by climate and their feelings like ours are sometimes "predictions" that can be relied upon, and "under the weather," while old as an expression, is a true sanitary term. It follows, then, that even among all the chaff of old-time weather forecasts there are a few grains of wheat.

But all who talked and wrote and prophesied about the weather in the olden times were not believers in "signs" and were not dealers in superstition, depending for fame upon the credulity and ignorance of the people. Even in the dark ages there were some faithful, earnest students seeking light, knocking at the doors of Nature's great temple asking for the *truth* with which to combat the sham. Konrad, of Megenberg, in the "Book of Nature," the oldest natural history in the

PROF. MARK W. HARRINGTON, CHIEF OF THE WEATHER BUREAU.

German language, written about the year 1350, first printed in Augsberg in 1475, and which within 50 years reached seven editions, wrote some things which may yet be read with profit by some in these days of artificial rain-making. Speaking of rain Konrad says:

> Rain comes from the watery vapour which the sun's heat has raised up into the middle region of the atmosphere, when, owing to the cold which is there, the vapour is again converted into water as we see in the vapour which arises from the boiling kettle over the fire; when the vapour touches the cold iron lid of the kettle it is converted into drops of water.

But—

"New occasions teach new duties,
Time makes ancient goods uncouth."

and with the passing of the ground hog, the goosebone, and the old-time almanac comes the *new* "probabilities," the exact science, the reasoning from cause to effect,

that makes the weather service of to-day of world-wide importance; lives and property to the extent of millions in ventures on land and sea depending upon the accuracy of the "predictions."

Now as ever the weather is a subject of general importance, and all civilized countries are pushing out and perfecting their work in this direction. Russia has 334 stations of observation; at 51 stations the temperature of the soil is taken at the surface and at some 10 different depths. At 44 stations observations are made as to the evaporation of water. Even in China and Japan daily observations and records are made.

At Munich, Bavaria, from Aug. 26 to Sept. 2, 1891, was held an International Meteorological Conference, composed of the heads of the meteorological services of 17 different Governments, representing Europe, Asia, Australia, North and South America. Yes; all the world is interested in the weather, and in this, as in other things,

"One touch of nature,
Makes the whole world kin."

Before adjourning those attending this International Conference at Munich agreed to attend the general congress of meteorologists from all parts of the world to be held at Chicago in 1893, and that another International Congress should be held in Paris in 1896.

As an incident of this conference, pointing out the lines upon which the science of meteorology is now being most extended, Prof. Wild, the representative of the weather service of Russia, and Prof. Mark W. Harrington, Chief of the Weather Bureau of the United States Department of Agriculture, united in presenting a resolution which was adopted and of which the following is a part: "That it should be impressed upon the committee, which may be appointed, to consider the subject of the proper method of extending meteorological observation and publication in the interest of agriculture, and that this committee prepare a proposition thereon for the future general congress." In accordance therewith the subject of agricultural meteorology was made one of the leading matters for investigation and future consideration by the conference; and thus did the worthy representatives of these two great nations, whose most important industry is agriculture, unite to advance the calling that feeds the world.

While the science of meteorology is not new, it is only in recent years that it has been made of general practical use, brought down out of the clouds, as it were, and applied to the affairs of every-day life. It is now popular because it has been popularized. The harvest of its years of observation, record, and study is now being dispensed for the benefit of the humblest citizen. Away back in the early years of our Republic the Surgeons of the Regular Army at the various posts were required to keep a record of temperature, storms, etc., but it was not until after our last war that the Signal Service, which had proven of such efficient use in connection with army movements, was broadened and somewhat extended. In 1871 Gen. Hazen began the agitation of a plan for a more general distribution of information in regard to weather prospects, based on meteorological observations to be made by the officers of the Signal Service. It attracted but little attention at first, and had slight help from the Government, but substantial support came in time. Gen. Hazen was succeeded by Gen. A. W. Greely, who still more developed and proved its usefulness.

In 1890, urged by farmers in their organizations, and by Secretary Rusk, of the Department of Agriculture, himself a practical farmer, the law was passed by Congress transferring the weather service from the War Department to the Department of Agriculture. The signal corps for war purposes still exists in the Regular Army, but all the paraphernalia of the work pertaining to weather observations, display of forecast signals, etc., together with nearly all the officers and assistants, were turned over to the control of the Secretary of Agriculture on the first day of July, 1891, and while but nine months have passed since that time, the Bureau has been entirely reorganized and its efficiency greatly extended. As contemplated by the act of Congress making the transfer, while the advantages of the old service, which had been mainly used for commerce, were not in any way curtailed, the great improvements and extension of the work of the Bureau have been upon the lines of agriculture.

The implements of war having been turned over to the fields of peace—fields that cover all our great National domain—a head to direct and a hand to guide must be sought out, well trained, and adapted to so important a mission. These were found in the person of Prof. Mark W. Harrington, of whom a writer in the *Boston Transcript* of last July said:

As a colleague of Prof. Harrington, the newly-appointed Chief of the United States Weather Bureau in Washington, which to-day is transferred from the Army to the Agricultural Department, I send you the following biographical sketch, which will no doubt be of interest to many of your readers.

The subject of this notice is descended from the earliest settlers of New England. His great-grandfather and several others of the family of that generation took part in the Revolution, and the celebrated Judge, Theophilus Harrington, was a member of this family. Through his mother, he is descended from the Dutch Walradt family, of New York. Mark Walrod Harrington was born in 1848, on a farm near Sycamore, Ill. He prepared for college at Evanston, and graduated from the University of Michigan in 1868, when he entered the department of biological science in that institution as an instructor. In 1870 he went to Alaska as Acting Astronomical Aid to the United States Coast Survey, in the earliest reconnoissance conducted by Mr. W. H. Dall. He returned to the University of Michigan in 1872, and, in 1876, went to Leipsic to study in that university. At the end of a few months Mr. Harrington was appointed Professor of Astronomy and Mathematics in the School of the Chinese Foreign Office at Pekin, which position he held but one year, as his health failed in that climate, and he was obliged to return to America. In 1879 he was made Professor of Astronomy and Director of the Observatory at Ann Arbor, Mich., where he succeeded Prof. Watson, and this position he has held until the present time.

In 1884 he founded the *American Meteorological Journal*, a scientific monthly, which has always been published at a financial sacrifice to the editors, but has nevertheless reached its seventh volume, and is the only magazine devoted to meteorology in this country. In 1886 the writer became associate editor of the *Journal*, and three years later Dr. W. J. Herdman, of Ann Arbor, joined the editorial staff.

Prof. Harrington has traveled extensively, is a prolific writer, and is well versed in botanical, meteorological, astronomical, and mathematical literature. He is a life member of the Linnæan Society of London, and a Fellow of the Royal Meteorological Society. That he is admirably suited for the position of Chief of the Weather Bureau is recognized by all who know him, and the writer ventures to predict that under his direction, aided by the civil character of the Bureau, which will now render enlistment in it attractive to scientific men throughout the country, the weather service of the United States will expand in directions in which it has hitherto been cramped by its military regulations, and that it will come to hold the first place among the meteorological services of the world.

With two such leaders as Secretary Rusk and Prof. Harrington, whose birth and early training on the farm has always kept them in such close touch with the tillers of the soil, what wonder is it that the number of stations for observation were increased over 150 per cent. within the first four months of the new regime, and that at present at nearly 3,000 stations regular observations are made, while a demand for a greater number from all parts of the country was never so great as now, and the extension is retarded only by the limited appropriation for the service.

As a key to the lines upon which the Weather Bureau is now being conducted, a few extracts are given here from an article entitled "How Could the Weather Service Best Promote Agriculture," written by Prof. Harrington before he became its chief, and published in the *American Meteorological Journal* for May, 1891. Upon the general subject of the (then) coming transfer and its work for agriculture he says:

This will add greatly to the usefulness of the service, but it will also add to the volume of its work and to the difficulties it will have to overcome.

Of the absolute necessity for more stations, so as to arrange for forecasts of local storms, so important for farmers to know, he says:

This requires that the printed forecasts should be placed in his (the farmer's) hands as soon as possible after they are made out—a matter of great difficulty, especially in a sparsely-settled country. Prof. Nipher has pointed out the possibilities of the telephone in this direction. Its rapid extension may be confidently expected as soon as the patents expire and it passes into the free ownership of the public. Another way to meet the difficulty is to be found in the extension of the delivery of mail over country districts, as has long been the case in England. The establishment of numerous centers for district forecasts would accelerate the distribution of forecasts. If the forecasts could be printed promptly in the County papers, mail delivery in the country would promptly place them in the hands of the farmers. * * * The predictions of frosts, floods, and cold and hot waves have already been made, and to these should be added others not less important in some parts of our territory. Among them are the hot winds of the Plains, those of the Sacramento and San Joaquin Valley, the northers of Texas, and the chinooks east of the Rocky Mountains. *Climatic features*—To the farmer the problems of the climate have a permanent, while those of the weather predictions have only a passing, interest. * * * It is the average weather or climate which determines the agricultural capacity of a region. An unfavorable climate is quite as vigorously exclusive as an unproductive soil.

Prof. Harrington then shows that but little has been done in this important direction, but tells of some few instances as illustrations;

* * * The warm band existing half way up the Alleghanies * * * a cold island in southeastern Michigan * * * hot winds of the Plains * * * distribution of average wind velocity over the States * * * the sea breezes of the Massachusetts coast * * * our cold waves. These are all of high importance to the farmer, but the number of them is so few that they hardly do more than serve as specimens of what can and ought to be done for him. * * * The distribution of snow in the States is imperfectly understood, though it possesses features of unusual interest and importance. * * * Precise information on these subjects, placed in the hands of our agricultural class, would add greatly to the ease and certainty of farming. * * * All the information relating to each climatic division of the States should be summed up in a special climatology of that region, and this should be printed under such conditions that the intelligent farmer could learn of its existence and could acquire it. * * * The books should tell the facts in such a way as to warn as well as to encourage. No rose-colored account of the climate is needed, nor is the climate to be painted in colors untruthfully dark. Such climatologies will be issued only too often by those who have personal interests to serve. * * * *Special Agricultural Meteorology*—Under this head come the relations between plants, soil, and meteorology. * * * Among the problems which must be studied are the action of soil and surface covering on the meteorological elements and the corresponding reactions; the effects of exposure, inclination, color, and constitution of the soil; the ground-water and its variations and motions, and the air in the soil and its changes. Under this head would also be included forest meteorology. * * * Observations of temperature and precipitation above trees are yet very much needed. * * * The relations of the weather to the different stages of plant growth. * * * The distribution of a species of plants is largely due to the climate. Plants cannot move, and their existence on a spot is a key to the climate. * * * Popular education in meteorology should be encouraged. * * * All agricultural colleges should give elaborate courses in meteorology; it is to be feared that some give none at all in this important branch. It should be taught in the universities and colleges—at least as an elective study—and here its scientific and mathematical foundations should be given rigorously. Elementary and simple meteorology should be given in the public schools. * * * A series of popular publications and public lectures on the subject of meteorology would also do much service in this direction.

Upon these general lines then the Weather Bureau is now being broadened and developed, new work is being taken up, new stations of observation are being established, while those for the display of the forecasts are now numbered by the thousands. Railroads, telegraph and telephone lines, postoffices, owners of mills and factories, using their steam-whistles, and newspapers, with their millions of daily readers, all co-operate to extend the constantly-improving results obtained by the Bureau as quickly, and as far and as wide as possible.

Among the most important and valuable portions of the legacy that the new Weather Bureau received from the War Department when the transfer was made, was the corps of scientific and well-trained specialists in the science of meteorology; some young, others grown gray in the service, but all enthusiastic in their work, and possessing an *esprit de corps* that adds greatly to the present success and future prospects of the Bureau. Some of these have been sent out to distant State central stations to organize and arrange the details of new work, and are controling

more local stations in single States than were at one time connected with the entire service. Nearly all the States now have a State weather service, which co-operates with the National Bureau in the work of observation and preparation of forecasts, display of signals, the publication of maps, weather-crop reports, the condition of rivers, and a number of them issue monthly general reports full of valuable data.

The outline of a part of the routine work of the Bureau may be of interest. The ancients based their forecasts upon the appearace of the sky, the movements of animals, and other natural phenomena, that through long years of observation led up to some accuracy; but their lack of knowledge of physical laws prevented any rapid progress or improvement. The invention of the thermometer and the barometer were the first reliable means for observing and recording meteorological conditions, and these are of great value to the individual who desires to make forecasts for his own locality. But when Franklin tamed the lightning and Morse harnessed it for its use in outriding the wind and storm, they made possible the forecasts covering a continent by collecting the weather conditions over all portions of that continent *at the same instant*, and placing them a few minutes later at one central point, and thus a new method has come into use combining on a chart the several elements of the weather observed at the same moment at a large number of stations and covering as great an extent of territory as practicable.

These maps are styled synoptic charts, from a Greek word meaning "a general review;" that is, over a large tract of country. Twice every day, at 8 a. m. and 8 p. m., 75° meridian time, if we could take a bird's-eye view of our great country, we would see the hundreds of observers climbing the steps to their instruments, placed upon an elevated place and building, so as to be free and unobstructed by neighboring objects, and taking the data which is at once telegraphed to the central office at Washington. The observers report the air pressure reduced to sea level, temperature, dew point, wind direction and velocity, amount, character and direction of clouds, character of weather, whether cloudless, partly cloudy, cloudy, raining, sleeting or snowing, and the amount of rain or snow. In addition to the reports sent to the central office from all parts of the United States, others are received from Canada, Bermuda, and Cuba. These telegraphic reports are sent in cipher, not on account of secrecy but to save expense, as a single word will often represent a sentence. From all the data thus received twice each day are the forecasts made, and the maps showing the conditions prevailing at one time in all parts of the country are prepared, printed, and sent out by thousands, and all within an hour or so after the time that all the observations were made. At one time these maps were prepared only in Washington, but they are now made and printed at some 65 stations, and upward of 7,000 copies are issued daily; in addition to which they are printed in reduced size in the large morning and evening papers of several cities to the aggregate number of more than half a million of copies. At one time the forecasts were also made only in Washington, but there are now 20 local forecast officials at leading centers who also issue forecasts in connection with those received from the central office. Another important forward step which has made the service far more practical in thousands of localities, has been the longer time ahead for which the forecasts are made. Instead of predicting for the coming 24 hours as under the old rule, since Jan. 1 of this year they are made for a period of 36 hours ahead, so that even in remote sections of the country persons interested can know the night before of the probabilities for the next day. These maps are gaining in popularity all the time, and thousands of business men, farmers and others are becoming quite expert by their study in forecasting the weather for themselves, and thus, as time goes on, every man can indeed become his own weather prophet. In some places students of these Government weather maps have obtained not a little notoriety as weather prophets, the source of their "weather-wise" predictions being as yet not generally known by their neighbors.

The preparation and publication of the daily weather maps is only a small part of the work of the central office of this city. The many and delicate instruments used in all the large number of stations are here adjusted, repaired and sent out, as are also the signal flags and other material from the storerooms. One of the best-fitted telegraph stations keeps up its merry rhyme of words day and night, back and forth with the stations of our country and many of those in foreign lands. A complete printing department, with its composing-room, press-room, folding and stitching-room, turns out the printed page by millions in a year; not the least of which is a large edition, sent to schools, colleges, libraries, and individuals, of the *Monthly Weather Review*, a magazine containing a complete history of the weather at all points for a month and all meteorological data pertaining to the service. This *Review* is published by authority of the Secretary of Agriculture, under the direction of Prof. Harrington, by a board of five editors representing important divisions of the Bureau. A library of over 12,000 volumes, not counting pamphlets, maps, etc., daily growing in size and value, contains much of the meteorological, physical, and geographical lore of the world. Scientists noted as specialists are constantly making studies of figures and phemomena in their various lines. The elaborate files, a portion of which are kept in large fireproof vaults, and well-filled shelves of the Records Division, as its name implies, has charge of all the facts, figures, and other data obtained thoughout the world by long years of observation and study; while the Executive and State Weather Service Divisions have as a part of their duties the supervision, conduct, and extension of all the thousands of stations for observation and display. The organization and system seems to be almost perfect and moves on smoothly and efficiently, unaffected by the wind or weather with which it deals; the tone and spirit of all seems to be to perfect the service and to extend it to a still greater field of usefulness.

As outlined by Prof. Harrington in the article before quoted, one of the means he proposed for extending the benefits of the Weather Bureau was to have meteorology taught in the schools. Already much progress has been made in this direction. In October of last year E. B. Dunn, local forecast official for New York City, co-operating with the Board of Education and Superintendent of schools, commenced furnishing each morning to 15 grammar schools, the Normal college, and the College of the city of New York copies of the weather maps. One hundred and fifty teachers were first instructed, and they are thus able to interest the children, who will not only be able to forecast the weather, but the use of the maps aid in the study of physical and general geography. Boston was even ahead of New York in distributing the maps to schools and colleges, and they now go out all over Massachusetts and other New England States for the use of schools. Other States are moving on the same line; out in Wisconsin they are used in all the normal and in most of the high schools.

The Weather Bureau is rendering important service to farmers and others by the publication of its weather-crop bulletins, issued as they are, weekly, during the crop planting, growing, and harvesting seasons, from early Spring to late in the Autumn. They are based upon the reports of local volunteer observers located in many different neighborhoods in each State, already averaging nearly one for each County. The prospective yield of crops depends largely upon the weather—too much or too little rainfall, too cold or too warm, early or late frosts. The yield largely fixes the value, and if the farmer can know crop conditions all over his own and other States from week to week, he knows the value of his crop, and is not at the mercy of speculators and others who have heretofore taken pains to keep themselves well posted, while the farmer in the dark sold below real value. These weekly weather-crop reports and bulletins are universally popular where they are known and studied, and many illustrations could be given of their practical value to the farmer. A grape-grower in New Jersey not long since wrote of his experience. A buyer made him an offer for his crop. The grower wanted more, but the speculator told him how heavily the Concord vineyards were yielding that year. This was on Saturday, and as they could not agree upon terms the grower told the man to come back Monday, when he would have his weekly weather-crop report. The buyer said that was all right. He returned on Monday, and the grape-grower was smiling. The crop report showed that the vineyards elsewhere had commenced rotting badly. He told the speculator that he wanted $100 more for his grapes and he got it. Yes, there are millions in it for intelligent, progresive farmers, who are learning that it is just as much a part of their business to sell a crop and to know all about supply and demands as it is to grow the crop.

Another item of progress is the arrangements made for the display of frost warnings in localities growing crops liable to injury, which might be protected or gathered if the coming freeze was known in advance. The Directors at the central station in several States were last year instructed to perfect frost-warning systems to cover tobacco, truck, cranberry, and other fruit, and perishable crop-growing sections requiring such warnings; the result of such a system in Wisconsin alone having been so thoroughly satisfactory that the warning of a killing frost in four of the west central Counties on the 24th of August resulted in the saving of one-third of the cranberry crop (amounting to over $125,000) through flooding, whereas the remainder of the crop was destroyed, owing to no facilities for protecting it from the predicted frost. In Minnesota and the Dakotas, frost warnings were issued during August of the same year to protect the grain, and little or no damage resulted where farmers used smudges to cover their fields with a dense smoke during the period of anticipated frost. In the State of Kentucky alone nearly 150 frost-warning stations have been established and are now in operation. Only this last month (March 11) a Memphis (Tenn.) paper contained the following item in a telegraphic dispatch, telling of the sudden cold wave in Mississippi: "No damage resulted to tomato plants, as growers were warned by cannon firing on receipt of Weather Bureau report. Prospects are still good for over 2,000 acres in at this place."

California now produces millions of boxes of raisins annually; they are dried in the sun, spread out on trays, and are spoiled by rain. A dispatch from San Diego, Cal., Sept. 27, 1891, told of a heavy rain, and said: "The raisin-growers had been suspicious of rain, and some were advised by the Weather Bureau, so trays full of raisins were speedily stacked or covered, and but little damage was reported on account of the wet." Another California newspaper item, from another district, reads: "The Weather Bureau had given ample warning, and all the available help that could be secured was set at work stacking and covering the raisins in the vineyard." This year observations will be made and data collected on thunder storms, upon the amounts of which depends millions of dollars in value in the hay and grain harvest season alone.

Pages more could be used in telling of what has been already accomplished, what is now being done, and how much more can be done as the means are provided for the extension of the service. A large portion of the work has hardly been mentioned—its river, lake and ocean stations, so important to tell of coming floods and storms, and the great saving in life and property through these branches of the service. Then there is the vast amount of facts and figures that are being collected and put to practical use in a hundred different ways; aiding physicians in their studies of diseases, and the effects of different climates upon individuals afflicted with various ills. The records that are used by courts as evidence; by engineers and others. The merchant telephones the local station to know of the coming weather, that he may hold or ship his perishable produce. Even Barnum's "biggest show on earth," that was to have made its annual parade of several miles through the streets of New York, a few days ago, consulted the Government observer the day before, and on the forecast given the advertised parade was postponed, although at the time of the inquiry the sky was clear.

The Bible record of the olden time says: "The wind bloweth where it listeth and we hear the sound thereof, but no man knoweth whence it cometh or whither

it goeth." It is true that we do not know all about the wind, but of late we do know much of its ways, its comings and its goings, as we do of other matters connected with the weather; and the end is not yet. From thousands of flagstaffs every day fly forecast signals, now generally so well understood, and the carefully-kept records show that it predicts aright 85 to 90 times out of 100, and as the observation station are extended they are becoming more perfect all the time. Railroad trains carry the signals on the sides of their baggage cars, and so post the people of all the country 'round who are in sight as they fly along the rail. Thousands of steam whistles—and their numbers are daily increasing—on mills and factories toot the combinations of long and short blasts that tell for miles away of coming changes, and proclaim as well the practical benefits and success of this part of the work of him who looks after all of Uncle Sam's farms and of the wise direction of his able lieutenant.

As before said, the possibilities of the Weather Bureau for good, not only to agriculture but to all the varied interests of our country, are limited only by the appropriations that may be made by Congress to extend its usefulness. Only $75,000 additional has been asked for this year to extend the telegraph service of conveying to the people in city and country (especially to the farmer) the information now so well collected and arranged for practical use. This amount, asked for the whole United States, would doubtless be saved in a single County by timely warnings of coming storms or frosts. The amount now appropriated that may be charged to agriculture and internal commerce is only about $100 for each County of the United States, or six cents for each farm, and less than one-half a cent for each of our population for a whole year. Its warning signals for sea and land in a single day have saved property worth more than all the cost for a year.

MAPLE SUGAR.

New Methods of Production—New England Still Leads the Country.

As in everything else, the improvement made in the production of maple sugar has been very marked, and those who followed this business years ago would be surprised at the methods employed at the present time. Large orchards of maples are being cultivated, and, as the old way of producing was found to be too slow, new methods to expedite the work were devised. To further stimulate this industry the Government has offered a bounty on the production of maple sugar, but this does not seem to have had much effect. It is thought, however, that the people will soon begin to realize the benefits of the advantage of this opportunity.

New England still leads in the production of maple sugar and syrup, both in quality and quantity. While the industry is active in Ohio, Michigan, Wisconsin, Minnesota, and other States, yet their products are not equal in amount to that of New England. This may probably be due to the condition of the ground in the Western States, or to the difference in the variety of the tree.

The rock maple is the best sugar-producer, and the red maple is next best. Fine sugar can be made from this last-named variety, and the only thing to avoid is to keep the drip from the bark from getting into the sap. To remedy this the tree should be deeply tapped and a good spout used. This red maple is known to the farmers of New England as the white maple, and that variety which the botanists call white maple is known to them as the soft or swamp maple. While the swamp maple has a good quantity of sugar, it secures from the low and damp ground so many vegetable acids that it greatly affects the quality of its sugar.

The spout has been very little changed. A good one must fill a small incision, so that the hole will readily heal. It must also be non-leakable, and thus prevent the sap from running down the bark, which ferments and kills the bark. The pails have not been changed much either. The tin and wooden pails are still used, but there are objections to the use of either of these, the principal being that the tin bucket draws the sun's rays and thus sours the sap, and that the wooden bucket absorbs the sap and becomes sour. The objection to the use of the tin pail is partially obviated by painting the outside, but if a little care is exercised the objection to either of the receptacles is overcome. The advantage of the tin pail is that it is so light it can be hung on the spout, which should, of course, be made strong enough to hold the pail full of sap. In some instances the pails are painted two different colors, and if anyone turns them it will be readily seen if they have been visited or not when the sap is gathered. The pails have covers to keep out the dirt, as well as snow and rain.

The neck-yoke is a thing of the past, and its place has been taken by oxen or a series of wooden spouts. These spouts decrease the quality of the sugar, as they become sour in a short time. Tin spouts have been tried, but they do not seem to give any better satisfaction.

The sap-holder has not received so much improvement, and it is now, as it was years ago, the cause of much sour sugar. If the sap was immediately evaporated as it comes from the trees the sugar would be as white as snow, and it would be hard to distinguish it from the granulated product of the sugar cane. As soon as the sap is exposed fermentation sets in, which so changes the sap that the sugar is very dark. As the warmness of the weather favors fermentation it is necessary to keep the sap-holder as cool as possible, and the colder it is kept the better the sugar will be.

The evaporator is entirely a modern invention, and the sap fed at one end comes out the other end as syrup. They are protected by a cover, and the sap is worked down faster with a good deal less fuel. The invention of the evaporator has been the greatest stride in the progress of the maple-sugar industry, and its coming was welcomed by the producers of the sugar.

The best sugar is made from the sap of trees which grow on high land. When the sap comes from a good tree it contains a small amount of mineral matter. "Nitre" is the principal element of this, but nitre was unknown to the old-time farmer. He called it "sugar sand," and got rid of it in some way. Nitre is, chemically, a mixture of lime and malic acid, or malate of lime. At 11 pounds to the gallon this malate of lime settles and can be gotten rid of, but syrup of this weight is too thick. Although 11 pounds to the gallon is the standard for syrup, yet the average is 10¾ pounds.

SPECIAL NOTICE

TO THE WOOL-GROWERS OF THE UNITED STATES.

There are many valuable periodical publications in different localities in the United States, but none at our National Capital devoted to the interests of farmers and wool-growers; especially to methods of farming, varieties of production, seeds, varieties of stock, stock-breeding, the care of stock, etc. There is imperative necessity for an ably-conducted journal at Washington, D. C., devoted specially to those interests of farmers and wool-growers growing out of legislation by Congress, the administration of laws by the Executive officers of the Government, the decisions of courts, etc.—a journal that will advocate boldly and fearless protective duties for every product of the farm as amply beneficial as those afforded to the most favored of our protected industries. Importers, wool manufacturers, etc., keep agents in Washington to look after legislation, to appear in the Departments to argue questions arising on the administration of laws; but farmers, including wool-growers, have no agents there located, nor any newspaper there to advocate their interests or protect them. The result has been that adverse interests has always secured advantages over them. The rulings made after the wool tariff act of 1883 by customs officers, in some of the Departments, and even in courts ruinous to wool-growers, never could have been made if there had been an able journal at Washington always promptly advised of questions arising, requiring discussion and prompt notice to the farmers of the country. As early as 1887 a National Wool-Growers' Convention at St. Louis resolved in favor of establishment of such journal at Washington, and on Jan. 12, 1892, the Ohio Wool-Growers' Association renewed the recommendation.

The American Farmer, the oldest agricultural paper in the United States, has recently been purchased, and will soon, and hereafter, be published at Washington, under the editorial management of an able and vigorous writer, a fearless advocate of protective duties for farmers, and a gentleman who will be vigilant to look after legislation in Congress, and all that may be done in the Departments or elsewhere affecting them.

I especially urge upon farmers, including wool-growers, to patronize liberally the journal mentioned. The attempted frauds on the McKinley wool tariff law, the mistakes of customs officers against wool-growers, the personal arguments made by importers in the Treasury Department against them, all know the urgent necessity for a liberal support of this journal.

Respectfully,
William Lawrence,
President Ohio Wool-Growers' Association.

SAMPLE COPIES.

Those who receive a copy of this paper are requested to give it a careful examination. The urgent need of a practical farmer's paper at the Capital of the Nation has long been felt. We propose to make of The American Farmer as good if not the best agricultural paper in the whole world. Neither money nor effort will be spared to get the best possible talent to contribute to it, and it will be kept far to the front in everything that relates to the best and highest interests of the farmers of the United States. It will be live, progressive and aggressive from the start, and aim to lead in everything that concerns the farmers in every section of the country.

The American Farmer is the oldest agricultural paper in the United States. For nearly three-quarters of a century it has enjoyed a most enviable reputation as a high-toned, reliable, progressive friend of the farmer. It shall be our aim to maintain this high reputation and increase it. Whatever long-trained skill in journalism, the leading talent in every branch of agriculture or abundant resources can do to make The American Farmer the foremost of agricultural papers shall be done.

At the same time the paper will be furnished so very low as to be within the reach of all. In order to extend its circulation, introduce it to all who are not yet acquainted with it, and give everyone an opportunity to see how well we will keep our promises, we will make an unusual offer. We will furnish the paper from now until the last issue of December, 1892, for the low price of 50 cents—five copies for $2.00.

Please examine the paper carefully, then show it to your neighbors, and send in your and their subscriptions. We are sure that you cannot get anywhere so much first-class reading matter, valuable to yourself and every member of your family, for so low a sum. Address all communications to

THE AMERICAN FARMER,
1729 New York Ave., Washington, D. C.

PROGRESSIVE AGRICULTURE.

The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

Intensive Culture of Maize.

REFERRING to the articles on maize in the last number of THE AMERICAN FARMER, we must acknowledge the fact that continuous cultivation of the soil, whether in maize or any other crop, will certainly lead to its exhaustion. Two methods of guarding against this are at the service of the farmer. He may rest content with simply providing against loss by rotation and fertilization, aiming merely at keeping the yield at a certain fixed quantity. On the other hand, he may endeavor to greatly increase the yield over that obtained under normal conditions, and this is what is meant by intensive culture. If intensive culture will pay better than ordinary culture, then that is the method which the farmer ought to pursue. Whether or not it will pay better depends on a number of conditions. First of all, it must be said that the price of land is the chief factor in the problem of intensive culture. Statistics show that the average cash value of the average yield of maize in this country is about $10 per acre. The actual cost of production and marketing cannot be much less than $8 per acre, allowing the farmer fair wages for his labor and that of his team. The net profit per acre is therefore about $2. This is equivalent to an income of five per cent. on land worth $40 an acre. In point of fact, it may be said that the average value of the acres planted in maize is less than $40; so that the actual profit is more than that mentioned above.

It is seen, therefore, that when maize lands get to be worth $40 an acre in this country it will no longer pay to plant that crop unless the yield per acre can be greatly increased. With a wise system of intensive culture it is not difficult to see that maize may be grown with profit on land worth $100, even $150 per acre. Land of such value either possesses unusual fertility, or else is situated near towns or cities where land has a higher value on account of its proximity to market. In the latter case fertilizers are more easily obtained and more cheaply applied.

Intensive culture not only implies more careful tillage, but also a scientific rotation of crops, and the application of plant food in the form of fertilizers, and in a condition of easy assimilability.

In the case of maize much has already been learned in regard to successful methods of intensive culture. The value of a rank growth of clover turned under at the proper time is well attested by the large crops which follow such treatment. Organic matter and nitrogen are furnished in great abundance by the above-mentioned treatment.

Perhaps the most interesting work in connection with the intensive culture of maize in this country has been carried on by the Kentucky Experimental Station. The land used for the experiments was high and gently sloping toward the middle of each plot. It was soil made on the spot and derived from the decomposition of lower silurian limestones. The subsoil was a light-colored clay, so retentive of moisture as to make the soil defective in respect of natural drainage. Two plots were planted without any fertilizer whatever, and yielded 26.8 and 31.6 bushels per acre, respectively, with 3,360 and 3,450 pounds of fodder (stalks and blades).

A plot fertilized with 300 pounds of superphosphate and 150 pounds of sulphate of ammonia per acre yielded only 29.1 bushels per acre, with 3,695 pounds of fodder. In this case the yield of grain was not equal to the unfertilized plots, while the yield of fodder was higher.

A plot which had received 100 pounds of sulphate of potash and 150 pounds of sulphate of ammonia per acre produced 60.3 bushels of grain and 4,580 pounds of fodder per acre.

A plot fertilized with 100 pounds sulphate of potash, 300 pounds of superphosphate, and 100 pounds of sulphate of ammonia per acre yielded 63.4 bushels of grain and 5,420 pounds of fodder. Sixty pounds of sulphate of potash per acre applied alone and in the hill made 63.7 bushels of grain and 6,420 pounds of fodder. When sulphate of potash 100 pounds, and superphosphate 300 pounds per acre were used the yield was 69.9 bushels of grain and 5,210 pounds of fodder. The best results were obtained by using sulphate of potash 100 pounds, superphosphate 300 pounds, ammonia sulphate 150 pounds, and sulphate of potash in the hill 60 pounds per acre. This mixture produced 80 bushels of grain and 5,970 pounds of fodder per acre.

The results of one year's experiments, however promising they may be, should not be taken as final. A second and third year's work has followed the record of experiments as given above. In the second year's work a yield of 94 bushels of grain and 4,040 pounds of fodder were secured by the application of 160 pounds of chloride (muriate) of potash and 160 pounds of nitrate of soda (Chile saltpeter) per acre. Plots with no fertilizer yielded 38 and 25 bushels of grain, respectively. The conclusions derived from the second year's work are as follows:

1. That in those plots where potash was one of the ingredients used there was a marked increase in yield, both in grain and fodder.

2. That when a fertilizer was used without potash there was scarcely any increase in grain but a considerable increase in fodder.

3. That the greatest increased yield was obtained by the combination of Chile saltpeter with potash.

4. That muriate of potash when applied alone made a marked increased yield over the plots containing no fertilizer.

The third year's work, during 1891, at the Kentucky Station has been concluded and the results tabulated. The results fully corroborate those of the two preceding years. Potash in some form seems to be necessary to the successful intensive culture of maize on soils resembling those of the Kentucky Experiment Station. In the third year's work a mixture of 160 pounds muriate of potash and 320 pounds nitrate of soda per acre gave a yield of 76 bushels. A pertinent question here may be asked with reference to the financial results. Does the increased yield pay for the fertilizer employed? The cost per acre of the muriate of potash and nitrate of soda above mentioned was $7.20. The increased value of the crop over unfertilized plots amounted to $15.60 per acre. The net increase in value of the crop was, therefore, $8.40 per acre. On the other hand, a plot fertilized with nitrate of soda and superphosphate, costing $7.20 per acre, gave a yield decidedly lower than the unfertilized plots, entailing a loss of $9.70 per acre as a result of that kind of fertilization.

It would be erroneous to suppose that what is true of the soil of the Kentucky Station would be true of every other locality. There are doubtless many fields that would be little benefited by the application of potash. It is the function of the experiment stations to carefully study the requirements of the soil for all localities.

The way, however, in which this is to be done has been clearly marked out by the work above noted. In the light of such results we may pertinently inquire why the average yield of maize per acre in the United States should be allowed to rest at 24 bushels per acre?

The Magnitude of the Agricultural Experiment Station Work in the United States.

Few persons realize the vast proportions to which agricultural experiment work has grown in this country. The chief part of the growth has been within the last five years, since the Hatch bill went into operation. There are doubtless many honest-thinking farmers in this country who still are so thoroughly wedded to States rights as to doubt not only the wisdom but even the constitutionality of the Hatch act, but no one can refuse to acknowledge its beneficent results.

By the terms of this law there are appropriated annually by the General Government $15,000 to each State and Territory that shall accept the terms of the grant and establish and maintain an Agricultural Experiment Station. There is also established in Washington a central office, called the Office of Experiment Stations, in which the results of the station work in the various States are digested and tabulated, and which also has a consulting and advisory interest in the progress and execution of the work. There is no doubt of the fact that this work might prove much more efficient were it more directly controlled by a central office, but from deference to the mistaken notion of the entire autonomy of the States only an advisory control was established. Could there be a more direct central control, there is no doubt but that the station work would be more effective, less crude, and more systematically arranged. In the organization of so large a number of stations in so short a time, it was necessary to employ a great many persons who were entirely unfamiliar with the character of the work they were called on to perform. Doctors of divinity, pedagogs, professors of belles lettres, and politicians have been placed in some instances at the head of affairs, and have proceeded to inaugurate and conduct scientific experimentation. The results, however, have been favorable beyond any reasonable expectation. Many of those who have been called, without previous training or experience, have developed valuable powers of direction and control, showing that an intelligent American can discharge acceptably the functions of any office which he may be called on to occupy.

Under the act of Congress, approved March 2, 1887, known popularly as the Hatch bill, agricultural experiment stations are now in operation in all the States and Territories with the exception of Alaska, Montana, and Idaho.

In a few of the States more than one station has been established, so that in all 49 are now in operation. In Alabama, Connecticut, Massachusetts, New Jersey, and New York separate stations are maintained wholly or in part by State funds.

In Louisiana there is a special sugar experiment station at Audubon Park, New Orleans, maintained chiefly by subscriptions of the sugar planters of the State. In connection with this station there is a complete experimental sugar factory, and a sugar school in which instruction is given in all branches of knowledge relating to the growth of sugar-producing plants and the manufacture of sugar therefrom. In addition to these already mentioned the Department of Agriculture has established several stations for special experimental work. Grass stations have thus been established in different States. Direct grant of special funds for entomological investigations are also given, as mentioned below.

Special stations for investigations of sugar-producing plants have also been established in Nebraska, Kansas, and Florida, sustained wholly by the Department of Agriculture. The investigations which are made by the Wisconsin Station on sugar beets are also paid for by the Department.

The total grant of money made last year by Congress for the experimental work amounted to $728,000 for the Hatch bill stations and the office of experiment stations and $50,000 for the sugar experiments. The amount expended in experimental work by the grass stations and entomological division is not accurately known to me, but reaches probably not less than $20,000, making the total expenditure by the Department of Agriculture for experimental work in round numbers $800,000. In regard to the particular amounts expended by the Department of Agriculture in direct co-operation with the experimental work in the several States, the following list will be found reliable: For entomological work—Nebraska, $600; Iowa, $600; Ohio, $1,500; Michigan, $1,000. For botanical work—Texas, $700; Arizona,

$700; Colorado, $1,000; Utah, $500; South Dakota, $500; Wyoming, $500; North Dakota, $500; New Mexico, $500; Louisiana, $750; Florida, $250; Georgia, $500; North Carolina, $500; Mississippi, $1,600.

In addition to this the State and private contributions to this work amount to fully $200,000, making in all the sum of $1,000,000 devoted annually to the cause of the experimental promotion of Agriculture. Five hundred persons are employed actively in this work. Among these are 71 directors, 120 chemists, 47 agriculturists (whatever that means), 50 horticulturists, 30 botanists, 36 entomologists, 22 veterinarians, 14 meteorologists (excluding all employed by the Weather Bureau), four biologists, etc. During the year 1891, excluding publications coming directly from the Department, the stations published 49 annual reports and 255 bulletins. The mailing list of the stations (exclusive of the Department lists) now contains 350,000 names. About 40,000,000 pages devoted to information on agricultural subjects were printed and distributed during the year, not counting the Department publications. This does not include the hundreds of newspapers which publish accounts of the work. It is safe to say that at least 10,000,000 of our reading people read more or less of this work every year. In addition to this add the number reached directly by the Department, and the vastness of the interests of this work, measured by the number of people directly benefited, is at once apparent.

Aside from the printed records there is a volume of special correspondence which can hardly be estimated. Each one of the stations receives and answers many thousand letters in a year. The number of letters written by the Department of Agriculture to those interested in agriculture probably reaches 500 a day.

The whole rural population of our country is thus brought into active sympathy and touch with the experimental world. This showing is one of which we may well be proud. The whole experimental agricultural research of the world will not compare in magnitude, in expense, nor results with that of our own country alone. And the beginning has only just been made. There is no prophecy of the future which can be too sanguine. There is not one of us to-day who has any adequate conception of the value of this work during the coming quarter of a century. Let every young farmer paste this article is his scrapbook. Turn to it in March, 1917, and see if I am not right.

Available Supplies of Guano.

The supplies of potash and phosphoric acid which are now available seem entirely sufficient to supply all the wants of intensive culture for many centuries to come. When we consider, however, the first commercial fertilizer that was ever extensively used, viz, guano, the outlook is not so favorable. The guano of Peru and of islands adjacent thereto furnished for many years almost the whole amount of this manure sent into commerce. There has been a general impression widely felt in agricultural circles that these supplies were about exhausted. This idea has gained a wider adhesion because of the fact that adulterated guanos have been largely sold in the markets. In addition to this old stocks of guano, held until they had lost a large part of their ammoniacal nitrogen, have been placed on the market as fresh, and thus the esteem in which this fertilizer was once held has been diminished. There is no disguising the fact that guano, once so highly prized, has suffered discredit among many of our most progressive farmers and gardeners. We are accustomed to hear them say: "There is no more good guano on the market; that which is offered for sale is either a mixture or purely artificial, without much value and purposely prepared to deceive the farmer." Such are invariably the responses to all attempts of the merchant to get them to purchase this old-time fertilizer for use on their fields. And yet there is no doubt of the fact that a good article of guano is by far the best fertilizer that can be devised, containing naturally and in proper proportions for plant life all the essential ingredients of plant food. It is a well-known fact that natural fertilizers—that is, those coming in the organic form—are much more assimilable than those of artificial origin. The phosphoric acid in bone, for instance, is much more valuable for plant life than the same quantity of this substance in phosphate rock. The same remark may apply to the potash in guanos as compared with that taken from the Stassfurt mines.

"There is no longer any good guano." I have heard this phrase so often that I have almost reached the point of believing it myself. Yet it must be admitted that numerous ships still visit the guano coasts, and carry their valuable cargoes not only to the ports of this country but also in greater quantities to those of Europe. Not only do the old stores appear to be reasonably productive, but new deposits are constantly discovered and their stores made available for commerce. Among these new discoveries may be mentioned as first in order the deposits in the Island of Corcovado. This is a small island in the Gulf Corcovado, near the coast of Patagonia, about 43 degrees south latitude.

An analysis of a sample embracing nearly 1,500 tons of guano from this new deposit shows that it contains 3.24 per cent. of nitrogen or ammonia and 7.36 per cent. as albuminoids, 14.43 per cent. of phosphoric acid, and 4.44 per cent. of potash. A better general fertilizer could not be desired, and the high availability of its constituents makes it all the more desirable for use in high-grade intensive farming.

Such a guano, indeed, may be taken as typical of what a fertilizer of organic origin should be. It is a product of nature working through centuries of time and storing in safe quarters immense quantities of plant food for the use of future generations.

It thus forms a product *sui generis* which no human industry, whatever may be the resources at its command, can imitate. The three chief fertilizing elements are found therein partly in the form of very unstable organic bodies, which are most easily decomposed under the influences of growing plants, and which are especially sensitive to the nitrifying ferments of the soil. There is also found in guanos crystallized alkaline phosphates which chemical industry has not yet been able to produce at a price within the reach of the farmer. In short, the assimilability of the fertilizing elements in a good guano surpasses that in which it is found in any other kind of manure.

It is evident at once that in these new deposits is found a guano which fully reaches the excellence of the best importations of former years. If such consignments would come to us more frequently the prejudice which now exists against this kind of fertilizer would soon disappear and it would regain its former high position in the favor of farmers.

REINDEER IN ALASKA.

It Is Not Thought Possible to Induce the Eskimos to Use the Domesticated Animal.

A bill has recently been introduced into the Senate "to secure the introduction of domesticated reindeer into Alaska." Its originators claim that this action is necessary by reason of the scarcity of food among the inhabitants of the littoral of Alaska. The gradual killing off by whalers of walrus and whales has cut off the principal food of the Eskimo, and if relief is to be furnished it should be in the shape of meat, fish, flour, etc., which can be more easily and cheaply dispensed than Siberian reindeer can be ferried over.

It appears that previous famines have sprung from other sources than the extinction of the walrus. The serious period of starvation on St. Lawrence Island, occurring 12 years ago, was caused by the failure of the people to lay in supplies at the proper time. In numerous instances this negligence was directly attributable to protracted indulgence in liquors obtained from unscrupulous traders. The medicine-man or sorcerer also has an evil influence over the people, often prevailing upon them to desist from all labor for weeks at a time and to abandon hunting and fishing-grounds for one or more seasons.

These people have never depended upon the walrus alone for subsistence, various species of hair seal having been of paramount importance in their domestic economy. The walrus is valued more on account of its ivory, which commands a good price from the traders and can be bartered for liquors. The whales are rapidly growing less. Fish are still very plentiful in Alaska, and birds have not perceptibly diminished in numbers.

The tribes which least suffer are those which have been left to their own traditional devices, and which have not been tempted to change their routine of life. There are known but two tribes which have partially domesticated the reindeer—the Laps of Lapland and the Chukche of Eastern Siberia.

The Laps are divided into "Fishing" and "Reindeer Laps," the former settling on rivers and seacoast; the latter following their flocks over the country and living in tents. The pastures are all in common, the animals being branded and allowed to choose their own feeding-grounds, the owners following with their tents.

Among the Chukche there are also two classes—the whaling and fishing-coast people of Bering Sea and the Arctic Ocean, living in fixed villages; and the reindeer Chukche, who, like the Laps, follow their flocks with tents. In the Summer a general move toward the sea is inaugurated in order to communicate and trade with their brethren on the coast. The two pursuits are not, at this time, combined or changed, though the different tribes become familiar with each other's advantages and mode of life.

As far as known the reindeer has never been domesticated by the Eskimos. It would therefore be a hard matter to induce them to wait for the natural increase of an animal which they have been in the habit of shooting at sight, as representing so much meat and a skin of a certain value. The wild reindeer and cariboo are by no means extinct, but this does not facilitate the solution of the problem. The animals would naturally mingle, and there can be question as to whether the domestic or the savage instinct would prevail.

It would be an extremely difficult undertaking to induce the Arctic and Bering Sea Eskimo to discontinue their present mode of living, based as it is upon traditions and experiences of ages, and adopt one entirely different. The change would involve the evolution of a nomadic pastoral people from a settled whaling, seal hunting and fishing people.

The whole social life and domestic economy of the Eskimo are intimately connected with the hunting of marine animals and sea birds and with fishing. They are social in their disposition, gathering at certain coast villages during the long Winter nights to pass days and weeks in feasting and dancing.

To Induce Humility in a Peacock.

If you wish to take the conceit out of a peacock pull out his tail feathers, and as soon as he finds the glory of his plumage gone he becomes the humblest, most subdued, and ashamed-looking bird that ever walked the earth. A peacock in full feather is so vain and conceited as sometimes to be really troublesome. Not satisfied with squalling at the top of his discordant voice, and with parading himself through the yard and up and down the walks with expanded plumage, he will attack cats, dogs, and even children, and has been known to seriously injure small boys or girls that were incautious enough to venture within his reach. Plucking his tail feathers, however, causes all his courage to evaporate. He will sneak around the yard like a whipped spaniel, will keep out of sight as much as possible, and you will hear nothing of him until his plumage has again grown.—*St. Louis Globe-Democrat.*

SUGAR-BEET CULTURE.

The Soil, Climate, and Methods Best Calculated for Success.

BY WALTER MAXWELL, DEPARTMENT OF AGRICULTURE.

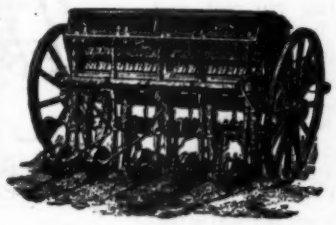
III.

VILMORIN'S IMPROVED BEET.

IN OUR second article upon the cultivation of the sugar beet, contained in the last number of THE AMERICAN FARMER, we considered in some detail the modes of preparing the ground intended for growing beets, and the essentially allied subject of fertilization. We propose to continue our considerations in the natural sequence of the several periods or stages of the work of cultivation, and having already observed the necessary acts in preparing the ground for the reception of the seed, we now proceed to the work of planting.

The ground in which beet seed is planted should be, to use a typical expression, "as fine as an onion bed." As the seed must not be put in beyond a given depth, the soil has to be so fine as to assure its being thoroughly covered, and a sufficient moisture to induce germination. If, at the time of planting, the ground is still coarse, and the surface made up of small clods, instead of being one mass of finely-pulverized mold, a drill will not deposit the seed at one even depth, but portions will be delivered much too deep, and a part left uncovered on the top. The final preparation of the seed-bed is made with the harrow, going in a depth of two inches, followed by the drag, which latter implement is much more effective in pulverizing the small clods than the roller. After the harrow has been over the last time, the roller is finally used to produce a level and rather firm surface, which is not only an aid to the eye in the act of drilling, but assists in securing an even delivery of the seed. After the seed is planted, unless the soil is moist and the weather inclined to rain, the roller should be used after the drill, in order to leave the surface close and firm, and the soil moderately compact around the seed. The effect of the latter act is to induce the moisture of the lower to rise and collect in the upper soil, or the seed-bed, and thus conduce to a rapid germination. If possible, after drilling the seed, the roller should cross the rows, instead of running the same direction that the drill had gone. The object of this observation is to avoid a trouble at the time of thinning out the plants, when the latter will be found in the line of the drill pipe one inch below the general surface of the ground, and when the plantlets are being separated or "thinned out" with the hoe, it is difficult to avoid covering them with soil, which is also frequently done by the wind. The roller, crossing the rows, leaves the whole surface level.

The planting is done with a small hand drill where small plats are in question, and with a horse drill when the undertaking is on a more extensive scale. There are also drills for special use where the planting is done "on the ridge," or in ridges properly laid. As we have not considered that particular mode of laying up the land in the previous observations upon the preparation of the soil, the object of such drills needs not be discussed now. The system of planting on ridges is only followed in very moist soils and wet climates.



COMBINED BEET-SEED AND FERTILIZER DRILL FOR FLAT CULTURE.

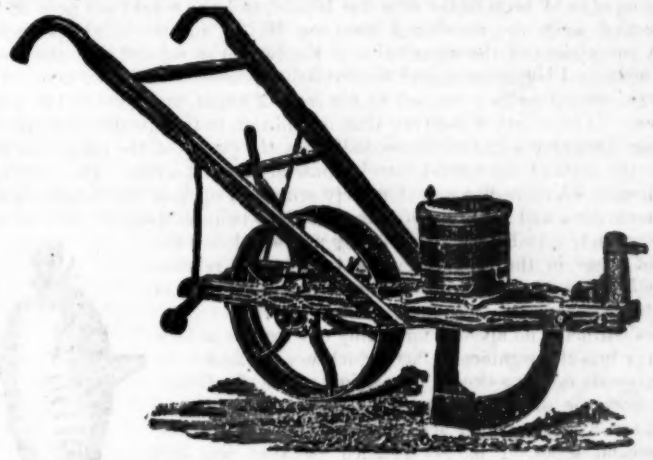
There does not appear to be any determined idea as to the quantity of seed that should be planted to the acre. The amount that is drilled by growers of equal experience appears to vary all the way between 10 and 30 pounds. A rational average of the weight that it may be well to plant, without waste, may be fixed between 15 and 20 pounds per acre. That, however, is somewhat regulated by the condition of the soil and the supposed vitality of the seed. The quality of the seed, in respect of its germinating power, should be tested before the actual planting is done.

In considering the varieties of beets to be planted we have to be directed, in the main, by the character of the soil; its depth of staple and porousness, and the particular adaptability of each variety. A soil having a deep, porous surface and subsoil, in respect of its mechanical properties, may be planted with any varieties. If such a soil, however, is extremely rich and likely to grow beets of a great size, a variety known for its power to resist the forcing action of a soil and a small cropper, rich in sugar, should be preferred. There are soils, however, which have not so deep an available surface, and whose subsoil is only of a medium porosity. For such soils the type of beet must be selected with some care. There are varieties which are essentially deep rooters. They have been bred with a very long, tapering form, with a tap root which strikes down to a depth of even 20 inches when the natural resistance of the soil does not prevent. There are other varieties of which a less elongated form is typical, whose habit of growth is so far modified that they do not produce so long a tap root. The latter varieties may be characterized as upper-soil feeders, as distinguished from the so-called deep-rooters. Now, whilst the deep-rooting kinds demand a free, porous subsoil in order to develop their normal habit, the other types will succeed in a soil which offers a greater resistance to the downward growth of the root, they being able to collect their nourishment from the more upper layers. It must be observed, nevertheless, that the depth of soil in every case must be such as to allow each type to develop its growth almost wholly beneath the soil surface. If the soil is so compact as to offer a resistance that will force the beet to grow up far above the soil surface the result will be bad. That portion of the beet which is exposed to the light contains a minimum of sugar, and it is highly important that every condition be observed that is essential to an under-surface development.

For light, sand soils, which are of a dry nature, and where the sugar content is likely to be high and the yield in weight per acre somewhat low, varieties which are termed "heavy croppers" should be planted, as the conditions offered by such soils are calculated to produce from those varieties a satisfactory weight of beets with a corresponding yield of sugar.

The actual varieties or types of beets upon the market to-day are extremely numerous. The two special varieties which are more widely known and most generally planted are the Klein-Wanzlebener and Improved Vilmorin. These varieties are good, moderate croppers (the Klein-Wanzlebener usually grows a greater weight per acre than the Vilmorin) first-class sugar producers, and are adapted to most soils. They, of course, will reach a deeper root development in loose, deep subsoils; but they are not extreme deep-rooting types, like the Desprez, and other varieties, and consequently produce satisfactory results in soils whose staple is not so deep. The two mentioned varieties are the all-round most approved kinds on the market. We would remark, however, at this point that farmers who are intending the culture of beets, and who are not conversant with the suitability of the several varieties to live soils, should state the character of the soil in which they intend to plant, and be advised as to which variety of beet to select.

The depth at which the seed should be planted is regulated by the condition of the soil and weather. If the soil is extremely fine and moist, one inch is deep enough to deposit the seed. If, however, the ground is only moderately fine, and in a dry state, and particularly if the weather indicates drouth, the drill should deliver the seed from one and a-half to two inches, in order that moisture from below may be obtained sufficient to produce germination. The depth of planting is also depending upon the temperature of the soil. Where the soil is very moist within it is almost invariably cold, and in such cases it is very desirable to lay the seed as near to the action of the sun upon the surface of the seed-bed as possible, providing only that it is covered. Planting, however, as it has been said, should not commence until the temperature of the seed-bed has reached 35 degrees.



In the operation of planting the seed, the supremely important question is the determination of the distances at which the plants should be placed from each other, which means the distance between the rows, and between the beets in the row, or still more definitely, the actual number of beets that should stand upon an acre. We are again depending upon the nature and condition of the soil for the solution of this question. With the consideration of the soil, however, a number of other vitally-important circumstances assist in controlling the determination of distance, certain of which we shall also have to remark upon.

It has been ascertained and established by innumerable experiments that the most advantageous size of beets for sugar-making uses is included between the limits of three-quarters of a pound and two pounds in weight. It has been shown that when the maximum weight specified is exceeded there is a notable falling off in sugar in proportion to the non-saccharine matters. On the other hand, if the size of the beet falls below three-quarters of a pound, the cost of handling the crop per ton is so enhanced that economically the result is a failure. During the past beet season we analyzed beets weighing from five to 10 pounds, and the sugar content ran from three to seven per cent. We also analyzed beets weighing less than half a pound, whose sugar content was as high as 20 per cent. Both those

extremes are outside the limits of economic sugar production. The large beets, with the low sugar content, will not pay to handle in the factory. The cost of obtaining the small proportion of sugar from the large proportion of raw material makes them unfit for manufacture, and only suitable for feed. The small beets, though extremely favorable for the production of sugar, yield so low a weight per acre that the result is failure to the grower. The typical-sized beet which the beet grower requires to hold constantly in his mind is the one pound, or one and a quarter pound beet, the standard varying only within the limits characteristic of the varieties. The Klein-Wanzlebener beet is naturally about one quarter of a pound heavier than the Vilmorin variety. Now each grower requires to determine the number of one pound beets that his particular land will produce to the acre, and he has then established the distance between the rows, and between the plants in the row, that should be observed in planting in his soil.

It is very evident that a rich soil—a soil of a deep, porous nature and containing an abundance of all plant food—would produce a great weight per acre. In order to regulate the size of the beet, and keep it within the one pound limit, it would be necessary to plant the beets very closely together. In a soil naturally less fertile, or which has become more or less exhausted, the distance between the plants must be proportionably increased so as to lessen the number per acre.

We do not require to return to the time when the seed was distributed broadcast. That system of planting is so essentially obsolete that its consideration needs not to be revived.

At the time when drilling the seed came into practice the distance which the rows were placed from each other varied from 20 to 24 inches, and the space left between the roots in the row was about 18 inces. At that period large beets were grown, and the average content of sugar was very low, being less than 10 per cent. in the juice of the beet.

Klein-Wanzlebener Sugar Beet.

A new era in sugar-beet growing opened with the experiments of Vilmorin, Pagnoul, Brien, Dubunfant, and others: the purpose of those famous scientific experimenters was to ascertain the influence of the distance between the rows, and between the plants in the row, upon the yield per acre and the sugar value of the crops. Pagnoul, in a famous series of experiments, planted in the same field beets of the same variety but at different distances. In one series the beets were drilled 20 inches between the rows, and the roots left 20 inches apart in the row. In a second series the rows were drilled only 17 inches apart, and the space between the plants in the row was eight inches. In the first series the crop was characterized by the following results:

The number of beets to the acre was 16,326, and the weight per acre 28 tons. In the second series, the number of beets was 46,122, and the weight per acre 36 tons. A comparison of the sugar value of the two series showed that the beets of the first contained 10 per cent., and yielded 5,600 pounds of sugar per acre; whilst those of the second series contained 12 per cent. of sugar, and gave 8,640 pounds to the acre. It was further observed that, in addition to the greater yield per acre and higher content of sugar of the second series, the purity of the juices was much higher in the beets of the second than in those of the first series. The proportion of alkali salts, which bodies we extensively remarked upon in the article devoted to soil preparation and fertilization, was more than twice as great in the first series as in the second. And those alkali bodies not only lessen the content of sugar in the beet; they also reduce the relative amount of sugar which can be obtained in the process of manufacture.

Gray-Top Beet.

We shall make no apology for asking our readers to look still further into the significant facts which were unfolded by the experiments we have cited. The weight of the alkali salts removed from the soil by the first series, or the wide-distance planting, was 840 pounds per acre; and the amount removed by the second series, or narrow-distance planting, was 520 pounds per acre. We see, then, that in the first series the 16,326 roots, or 28 tons, abstracted from the soil 840 pounds of the food material which is indispensable to the beets in small proportions, but retarding to the formation of sugar if taken up by the roots in large doses. The second series beets, numbering over 46,000 and weighing 36 tons, took from the soil actually less mineral plant food than the 28 tons of the first series. The explanation of these vital phenomena is found in the marvelous law of assimilation of organic bodies, such as sugar. Sugar is composed of carbon and water. The carbon used in the formation of the sugar is gathered from the air, where it exists in the form of carbonic acid gas, by the leaves of the plant; and the water is taken up from the ground by the roots of the plant. When the carbon and water are brought together in the body of the beet, by a very complicated process, the sugar is found. Not only is the sugar which we find in the root formed in that way, but also other matters composing the beet. We see, then, that the greatest part of an acre of beets is formed out of plant food which exists in the air, mixed with water taken from the ground. It has already been said that the plant food is taken from the air by the leaves. Consequently, the amount of plant substance found is controlled by the extent of the leaf surface. And the greater the number of plants standing upon an acre, so much greater is the number of leaves, or the leaf surface, particularly in the earlier stages of the beet's development, and proportionably larger is the amount of the substance of the crop built up out of air and water in relation to the materials drawn from the soil.

Close planting has been proved to yield beets of the highest sugar content, the purest in quality, and with the greatest weight to the acre. These results, which are high in every particular, obtained by close planting, are achieved at a minimum cost, in respect of the demand made upon the plant food; because, relatively, the largest proportion of the materials utilized in the production of the crop is abstracted from the air, whilst the low proportion of mineral matters taken up leaves the soil but little exhausted.

White French Sugar Beet.

In the system of planting in practice to-day the distances left between the rows are 16, 18, and 20 inches, the actual space being determined by the condition of the soil. The space left between the plants in the row is from six to eight inches. The leading principle to be kept in mind in determining the distances of planting is, however, to plant as close as possible, allowing only that we secure an average beet of sufficient size for economic manipulation.

The Spring of the year is not only the season for planting seed for the production of beets, it is also the period of planting "mother beets" for growing seed.

The so-called "mother beets" are such as are selected from the beet crop of the previous season. At the time of taking up the general crop in the Fall the varieties are carefully looked over, and examples exhibiting the qualities required for propagation uses are chosen from the whole stock. The selection made in the Fall is based upon the physical properties of the beets. Only those of a given average weight are accepted. The weight standard is controlled by the normal average of each variety, the local conditions of soil, and the system of selection obtaining. Mr. Vilmorin, the great French seed grower, does not grow seed from any mother beet which weighs less than one and one quarter pounds. Those weighing over two pounds are also usually rejected. Where, however, the average size of the beet is low, as a result of close planting, the weight may vary between the limits of one and two pounds. In the selection, the ideal form of each type or variety must be as nearly as possible approximated. Usually, the beet of correct form is long and tapering, having one leading tap root, and free from coarse prongs or side roots. The leaf system should rest closely upon the top of the beet, and without a long, coarse neck intervening.

Seed-Stand of an Imperial Beet.

When the mother beets are selected in the Fall they are placed in pits or silos which are constructed for their preservation during the Winter months.

In the Spring, commencing with April, the silos are opened, and the beets taken out, and subjected to a crucial examination. The selection at this stage is chemical in its nature. Each beet is analyzed, the sugar content determined, and placed in one of three classifications, according to its individual richness in saccharine matter, or rejected if it falls below a given minimum. The analysis is made by taking a core diagonally from the lower to the upper end of the beet, avoiding to break through the rind on the upper surface. The instrument used for the purpose takes an average sample from the inside of the beet by the process we have described. The sample, which consists of a fine pulp, is placed in a hand press and the juice expressed. The sugar content of the juice is then determined by the use of the polariscope.

We have said that the beets are, by the system of examination given, resolved

into three or more orders of merit. No. 1 may represent beets whose sugar content exceeds 18 per cent. No. 2, beets having from 16 to 18 per cent. No. 3, from 16 per cent. down to the minimum adopted. Now, with the great seed breeders or growers, No. 1 is exclusively limited to the production of seed for further pedigree uses. No. 2 is also retained by the seed breeder to produce seed from which the meat generation of seed is placed upon the market. No. 3 produces the commercial seed which is sold direct to growers of beets for factory use.

By the methods of selection of which we have spoken, supplemented by rational crossing, the existing well-known varieties have been established, and the average sugar content of the beet has been raised from less than 10 per cent., to its present condition of richness.

Seed breeding and propagation is not only a science, but a great business, distinct in itself. As a business, it first built up the fortunes of those who gave themselves to its pursuit. It also laid the foundation of the great beet-sugar industry as it exists in its vast proportions and magnificence to-day.

EXTRAVAGANCE OF MUD.

The Enormous Cost of Bad Roads to the People of this Country.

We have in the United States something like 16,000,000 of horses and mules above the age of two years upon our farms, and at the moderate estimate of 25 cents as the cost of feed and care of each of these animals, we see at a glance that the aggregate expense of maintaining them is about $4,000,000 per day. If, by a similarly moderate estimate, we say that they are kept in the stable in a condition of enforced idleness by the deep mud of Spring and Fall for a period averaging 20 days in each year, we may easily compute that the loss, in this respect alone, will amount to $80,000,000 per year, a sum sufficient to build 16,000 miles of excellent highway. Of course, considering the great variety of conditions, and the consequent number of factors to be regarded, it is impossible by mathematical formula to compute the loss entailed on any community by the continued toleration of these dirt roads in their present condition; but the error in the result of any computation is more likely to show a loss smaller than actually exists, and in whatever way the matter may be regarded it is certain that with the imposed burden of extra help and extra draft animals, loss of time, wear and tear of wagons and harness, the drawing of light loads, and the depreciated value of farm lands, we are pursuing a short-sighted policy in permitting the present system to continue. Besides the actual loss, which a moment's reflection will serve to show, we are gaining nothing and saving nothing in that great department of agricultural industry to which the condition of the dirt road is of such marked importance.

By dwellers in cities the actual condition of these country roads during the wet season is scarcely known; while the farmers, to whom all roads are dirt roads, and who have never seen nor known of a highway better than that which they have used from boyhood, the dirt road is an accepted fixture, which long habit and use have impressed upon them as a natural and necessary adjunct to farm life. * * * In the Spring of 1891 * * * in the State of New York the country newspapers were printing long editorial complaints of the hopeless condition of the rural highways, and the consequent paralysis of country trade, while commercial reports were published from week to week in which business embarrassments and failures were charged directly to the impassable condition of the country roads. Half-loaded farm-wagons were stalled in deep mud almost in the shadow of the magnificent $20,000,000 Capital at Albany, while, as if to show to what ridiculous ends the perversity of the human mind will sometimes lead us, the good farmers of Albany County were actually sending telegrams to the Legislature asking for the adjournment of a committee hearing, because the roads of Albany County were too bad to permit them to get to town in time to oppose a bill which promised to make them better!—*Century.*

BAD TEMPER UNDER WATER.

Curious Experiences of a Pearl-Diver.

The diver, as the reader may imagine, gets many scares when below. A 15-foot shark, magnified by the water and making a bee-line for one, is sufficient to make the stoutest heart quake in spite of the assertion that sharks have never been known to attack a man in dress. Neither is the sight of a large turtle comforting when one does not know exactly what it is, and the coiling of a sea-snake around one's legs, although it has only one's hands to bite at, is, to say the least, unpleasant. A little fish called the stone-fish is one of the enemies of the diver. It seems to make its habitation right under the pearl-shell, as it is only when picking them up that anyone has been known to be bitten. I remember well the first time I was bitten by this spiteful member of the finny tribe. I dropped my bag of shells and hastened to the surface, but in this short space of time my hand and arm had so swollen that it was with difficulty I could get the dress off, being unable to work for three days, and suffering intense pain the while. Afterward I learned that staying down a couple of hours after a bite will stop any further discomfort, the pressure of water causing much bleeding at the bitten part, and thus expelling the poison.

One of the strange effects that diving has upon those who practice it is the invariable bad temper felt while working at the bottom; and as this irritability passes away as soon as the surface is reached again, it is only reasonable to suppose that it is caused by the unusual pressure of air inside the dress, affecting probably the lungs, and through them the brain. My experience has been that while below one may fly into the most violent passion at the merest trifle; for instance, the life-line held too tight or too slack, too much air or too little, or some imaginary wrong-doing on the part of the tender or the boys above will often cause the temper to rise. I have sometimes become so angry in a similar way that I have given the signal to pull up, with the express intention of knocking the heads off the entire crew, but as the surface was neared and the weight of air decreased, my feelings have gradually undergone a change for the better, until by the time I reached the ladder and had the face-glass unscrewed I had forgotten for what I came up.—*Century.*

SEMI-TROPIC FRUITS AND NUTS.

Rapid Growth of an Important Agricultural Industry.

The Census Bureau, in order to ascertain the extent of the semi-tropic fruit and nut industries of the United States, has made a special investigation for that purpose. It is interesting to note the results, for the figures shown are many times greater than one would at first suppose. The taking of such a census was a most difficult matter; but through special schedules of inquiry every producer in the country has been reached.

The production of such fruits and nuts is confined largely to the States of California and Florida, but figs, oranges, kaki, and pecans were found growing to a considerable extent in States bordering on the Gulf of Mexico. Louisiana and Arizona have also a large acreage in oranges, but the trees in the latter state are nearly all young and of recent growth. Of course the acreage of oranges exceeds that of all other fruits, yet the possibilities of pineapple culture on the southeast coast of Florida and for 100 miles north of Key West, on the Gulf Coast, are developing very rapidly.

Pecan culture in Florida and all the Gulf States has begun to spread wonderfully, while in a few years the figs, olives, maderia nuts, and lemons of California will rival in value her large crop of oranges. In the census year the tables showed three times as many non-bearing as bearing orange trees. Since the census was taken planting has been going on more rapidly than ever, and the number of trees now growing in California must be nearly double that of 18 months ago, which means an output of at least 10,000,000 boxes of oranges from California before the end of the present century.

The Florida figures show a still greater proportion of non-bearing to bearing trees than do those of California, yet the increase of planting in the former State is not nearly so great. Just before the hard freeze of 1886, which did such great injury to Florida's orange groves, there was an enormous planting of young trees, but since then there has been very little. Therefore, most of the non-bearing trees have been planted five or more years, while the reverse is true of California.

Arizona has quite a showing of orange trees, the beginning of a new industry there, and their development is likely to be rapid. It was found also that in the Salt River Valley preparations were being made to plant more than 1,000 acres of oranges alone within 15 miles of the City of Phenix.

So it follows that the great advances made in other industries have not left behind that of fruit culture. The time of harvesting differs so in different sections that in time the United States will probably eat its own freshly-picked oranges throughout the year. Florida and Louisiana gather their fruit late in October or early in November; Northern California and Arizona in December and January, while the time of ripening in Southern California comes in February and March, continuing well into the Summer.

A few trees of pomegranate, kaki, pecan, pomelo, lemon, lime, fig, date, and banana were found growing for the family supply about farms and homes within the semi-tropic belt, which may be roughly said to extend as far north as Charleston on the Atlantic coast and to the 31st parallel of latitude along the Gulf coast and southwest Arizona, and in California as far north as the 40th parallel, within sight of Mount Shasta, with its perpetual snow and ice. Of course, all semi-tropic fruits and nuts cannot be grown in all the country as far north as indicated, yet the kaki, fig, and pecan can be grown to a considerable extent outside of these limits.

The following statistics were obtained direct from the growers, either by special inquiry or by personal visits of special agents to sections of the country where these products were grown:

	Acres.	Bearing Trees.	Non-bearing Trees.
Almond	13,515.00	656,566	800,010
Banana	677.50	577,762	.....
Citron	169.88	4,257	14,110
Cocoanut	9,864.00	123,227	1,190,549
Fig	4,477.00	188,186	285,201
Guava	650.00	32,943	130,599
Kaki	1,362.25	58,320	134,522
Lemon	7,256.00	167,663	488,784
Lime	495.58	19,096	44,255
Madeira nut	12,180.00	188,409	411,248
Olive	7,097.00	278,280	231,023
Orange	184,006.00	3,885,880	9,705,246
Pecan	27,419.50	214,968	657,980
Pineapple	2,189.50	21,750,000	.....
Pomelo	171.89	3,279	12,867

A Washington capitalist who bought some land in Florida recently went down to look at it. In the midst of a swampy waste he found a very dilapidated cabin. In the doorway hung a worn, gray blanket, and over the top of the blanket a grizzled "cracker" looked out at his visitor. The tenant surveyed his landlord and the landlord his tenant for a moment, until the latter broke the embarrassing silence. "Stranger," he said, "I ain't so poor as you think I be. I don't own this land hereabouts."

"CORN CAKE MURPHY."

His Missionary Efforts in Behalf of Corn as an Article of Human Food.

Secretary Rusk, in the appointment of Charles J. Murphy as Special Agent of the Agricultural Department in Great Britain, France, and Germany, has materially advanced the possibility of the universal use of American corn in Europe as a breadstuff.

"Corn Cake Murphy," as he has been known in Berlin, London, and Paris for the last three years, has been untiring in his efforts to convince the foreigners that Indian corn was a fit dish for the table, and not, as they thought, mere horse-feed.

A party of Americans, dining at one of London's chief hotels, were surprised to find upon the table a dish of hot "Johnny cake" and also some "egg-bread," accompanied by a card upon which "the compliments of Charles J. Murphy" were extended. Mr. Murphy frequently surprised visiting Americans in this way.

He had with him an old Virginia negress, who was well-versed in the art of cooking. Delectable dishes were prepared by her before the principals and pupils of the various cooking-schools in the United Kingdom, but with little success. Murphy tried hundreds of ways to induce the Britons to adopt corn as an article of diet, but was on many occasions snubbed and treated as a crank.

But his strivings were not unnoticed by the people whose interests he had at heart, as his appointment to the office above-mentioned will testify. Immediately upon the acceptance of this position he started for Edinburg, where an Exposition was in progress, and pledged $1,000 of his year's salary for some space at the Exposition. He then invested $600 additional of his salary for cooking apparatus and began on a large scale the manufacture of "Johnny cake" and corn bread. The Edinburg Gas Company, becoming interested in Murphy's enterprise, agreed with him to furnish every cooking-school in Scotland with a gas stove upon which to cook the corn bread. Then Murphy visited other great cities and has succeeded in creating a vigorous demand for corn meal.

The Agricultural Department has recently received a cablegram from Murphy announcing that he had succeeded in interesting the German Government in corn meal, and that a fair trial would be given it, with a view to recommending it for general use in the time of scarcity of breadstuffs on the Continent. This fact is of great importance to the American farmers, as it involves the shipment of large quantities of corn from the United States this Winter not only to Germany but to other countries who are suffering from a short crop of breadstuffs.

The late Mr. Tilden was the first public man to suggest the advisability of acquainting Europe with the virtues of corn meal, and through his efforts a bill was introduced in Congress to appropriate $100,000 to enable the United States to properly present to the foreigners the principal reasons why corn meal should be used as a breadstuff. This bill was lost, however, by reason of the fact that S. S. Cox poked fun at the idea of a corn meal crusade, and had the bill laughed out of the House.

Seven Years Without a Birthday.

A Scottish clergyman who died nearly 30 years ago, Mr. Leishman, of Kinross, used to tell that he had once been seven years without a birthday. The statement puzzled most who heard it. They could see that if he had been born on the 29th of February he would have no birthday except in a leap-year. But leap-year comes once in four years, and this accounts for a gap of three years only; their first thought would therefore naturally be that the old man, who in fact was fond of a harmless jest, was somehow jesting about the seven. There was, however, no joke or trick in his assertion. At the present time there can be very few, if there are any, who have this tale to tell of themselves, for one who can tell it must have been born on the 29th of February at least 96 years ago. But a similar line of missing dates is now soon to return; and indeed there are no doubt some readers of this page who will have only one birthday to celebrate for nearly 12 years to come.

The solution of the puzzle is to be found in the fact, which does not appear to be very widely known, that the year 1800 was not a leap-year and 1900 will not be. The February of the present year had 29 days; but in all the seven years intervening between 1896 and 1904, as well as in the three between 1892 and 1896, that month will have only 28.—*St. Nicholas.*

One Pedagog's Record.

If we are inclined to doubt the numerous accounts and traditions which have come down to us concerning the schoolmaster of ancient times we may find them verified in the diary of a certain Johan Jacob Haberle, of Germany, which has just come to light. This venerable wielder of the birch taught school 51 years, and during that time jotted down in his journal a record of punishments administered. Statistics show strokes with stick, 911,517; smites with birch-rod, 240,100; hits with ruler, 10,986; smacks on the hand, 136,715; slaps on face, 10,235; boxes on ear, 7,905; blows on head, 115,800; tasks from the Bible (catechism, poets, and grammar), 12,763.

Every two years he had to buy a new Bible to replace the one worn out by the rough usage of the pupils. The number of times he made them kneel on peas was 777, while 5,001 culprits had to do penance with a ruler held over their heads. One precept at least must have been well grounded in their minds, namely, "the way of the transgressor is hard." As for the abusive words of Herr Haberle, not a third of them could be found in any dictionary, and if a German dictionary does not hold them, where else shall one look?

An Appetizing Dish.

EDITOR AMERICAN FARMER: Those raising their own wheat can have an inexpensive, yet very nutritious, breakfast dish by grinding three or four coffee-mill's full of it, and cooking the same as oatmeal. Eat with sugar and cream. I generally prepare a quantity at a time, say a dishpan half full, by washing in two or three waters, floating off all chaff and beards, and drying in the sun. The soft wheat is the best.—LOUISA FUNSTON, Gove Co., Kan.

How a Boomerang is Made.

It will perhaps be interesting for those who have seen or know of the principal weapon of the native Australian to understand how it is made.

The boomerang, or, as it is known among the natives, the womera, is generally made from an "elbow" of the kurrawung tree, though sometimes the yarrow and myall trees are utilized.

Having found a suitable "elbow" or branch, it is customary for the native to chop it from the tree and immediately form it into a rough outline of the intended weapon. When after several hours' labor the womera is reduced to three or four pounds weight, it appears as a flat, heavy club, thinner at one arm than at the other.

Being of a naturally lazy disposition, the native often lays aside the uncompleted weapon for weeks at a time, and during this period the wood becomes hardened, and upon resuming his work the native does not realize that he is made to pay for his former negligence. He cares little, however, for time, as it is all his own.

After additional trimming and paring down the weapon is charred all over, great care being taken to burn no one part more than another. The charcoal being chipped off, the native then proceeds to lick the weapon all over with his tongue, after which it is placed in a smoky fire of green boughs which warms it and makes it pliable.

THE MOQUI INDIANS.

The Strange People of an Odd Corner of Our Country.

A hundred miles north of the Petrified Forest, and well into the edge of the Arizona desert, are the seven strange and seldom-visited Pueblo cities of Moqui. They have all wildly unpronounceable names, like Hualpi, A-hua-tu, and Mishongop-avi, and all are built on the summits of almost inaccessible mesas—islands of solid rock, whose generally perpendicular cliff-walls rise high from the surrounding plain. They are very remarkable towns in appearance, set upon dizzy sites, with quaint terraced houses of adobe, and queer little corrals for the animals, in nooks and angles of the cliff, and giving far outlook across the browns and yellows and the spectral peaks of that weird plain. But they look not half so remarkable as they are. The most remote from civilization of all the Pueblos, the least affected by the Spanish influence which so wonderfully ruled over the enormous area of the Southwest, and practically untouched by the later Saxon influence, the Indians of the Moqui towns retain almost entirely their wonderful customs of before the conquest. Their languages are different from those of any other of the Pueblos, and their mode of life—though to a hasty glance the same—is in many ways unlike that of their brethren in New Mexico. They are the best weavers in America, except the once remarkable but now less skillful Navajos; and their *mantas* (the characteristic black woolen dresses of Pueblo women) and dancing-girdles are so famous that the Indians of the Rio Grande Valley often travel 300 miles or more, on foot or on deliberate burros, simply to trade for the long-wearing products of the rude, home-made looms of Moqui. The Moquis also make valuable and very curious fur blankets by twisting the skins of rabbits into ropes, and then sewing these together—a custom which Coronado found among them 350 years ago, before there were any sheep to yield wool for such fabrics as they now weave, and when their only dress materials were skins and the cotton they raised.—*St. Nicholas.*

BUREAU OF INFORMATION.

A. O. Tyler, New Orleans, La.: A foreigner who comes to this country without his parents, at the age of 15, can obtain his second papers at the age of 23 without having to take out his first papers.

James Brant, Fort Wayne, Ind.: There are no figures to show with any exactness the population of England prior to 1801, when the first census was taken. It is generally believed by students of history that from 1300 to 1700 the population of England and Wales was about stationary, and about 2,500,000 souls, nearly that of Missouri, in 1890. From 1700 to 1801 the population slowly increased, until the census of 1801 showed 8,892,536 people. The population is now estimated at nearly 39,000,000.

Eliphalet Brown, Abingdon, Va.: A salve that we have heard highly recommended for all purposes, and is particularly good for chapped hands, lips, etc., is made of 4 ounces fresh mutton suet, 1 ounce of balsam of fir, and ½ ounce of camphor gum. Heat until all are melted and thoroughly mixed.

James G. Martin, Olathe, Kan.: Gosnold attempted a settlement of Massachusetts in 1602. The Pilgrim Fathers settled at Plymouth in 1620. The Massachusetts Bay Company settled Salem in 1628. Boston was founded in 1630, and the union of Massachusetts and Plymouth Colonies accomplished in 1692.

Brent Matthews, Olney, Ill.: Don't think you can purify your blood by putting drugs, patent or otherwise, into your stomach. You can only purify it by pure food, pure air, pure water, plenty of exercise, and correct living.

J. G. B., Marietta, Ga.: It is a mistake to think that a farmer's life is necessarily unhealthy. On the other hand, and in spite of the wretchedly-cooked food that is the rule in too many homesteads, and the violation of all sanitary rules, the farmers stand next to the top as a healthy class. The following table shows how many men in every hundred, n vocations named, attain the age of 70:

Clergymen	42
Farmers	40
Traders and Manufacturers	33
Soldie s a d Clerks	32
Lawyers	29
Art s s	28
Professors	27
Physicians	24

Henry S. Barton, Pottsville, Pa.: The manufacture and consumption of beer seems to be increasing faster than that of any other manufactured product. The output of the breweries of the United States last year was 30,000,000 barrels—equal to 120,000,000 kegs, or about two kegs for every man, woman, and child in the country. The increase of the output over the previous year was 3,000,000 barrels, equal to 12,000,000 kegs. It is estimated that we as a people squander over $500,000,000 a year for drink.

Particular About Butter.

Little Boy—Mom wants two pounds o' butter exactly like wot you sent us last. If 'tain't exactly like she won't take it.

Grocer (to numerous customers)—Some people in my business don't like very particular customers, but I do. It's my delight to serve them and get them exactly what they want. I will attend to you in a moment, little boy.

Little Boy—Be sure to get the same kind. A lot o' pap's relations is visitin' at our house, an' mom wants to drive 'em away.—*Street & Smith's Good News.*

Eastern Shore Agricultural Fair.

EDITOR AMERICAN FARMER: The 15th annual fair of the Eastern Shore Agricultural Association will open at the old fair grounds near Keller, Accomac County, Va., Tuesday, Aug. 30, 1892, and continue four days, very inclement weather excepted. The following officers were elected at a meeting of the Executive Committee, composed of George H. Adair, William T. Johnson, W. F. Fleming, John M. West, J. T. Bull, Dr. John E. Mapp, Dr. John W. Kellam, and T. T. Wescott, held Feb. 18, who will control the exhibition: George H. Adair, President; T. T. Wescott, Secretary, Grangeville, Va.; Dr. John E. Mapp, Treasurer.

This association has had a great success among agricultural circles. It has now been conducted for 14 years with the greatest satisfaction to all concerned, and has proved of much value to the farmers of the neighborhood. It started without any visible capital, and has had no income except the admission fee of 25 cents and the rental privilege for selling within the inclosure. All schemes that have any resemblance to gambling or unfairness have been rigidly excluded.

Now the association has on its handsome grounds two exhibition halls and a produce hall, and stables and other accommodations. The grounds are thoroughly inclosed and everything is in the best order, all of which reflects much credit on the gentlemen who have had control of the association's affairs. The horse and speed department would do credit to State fairs, and the produce department excels those of many States. The ladies' department is also unusually good. It is felt that the exhibit of horses and cattle could be improved. It is expected that the coming fair will eclipse any previous effort of the association. All communications should be addressed to the Secretary, T. T. Wescott, Grangeville, Va.

The "Prayer-Sticks" of the Pueblo Indians.

How many of my young countrymen who have read of the "prayer-wheels" of Burmah, and the paper prayers of the Chinese, know that there is a mechanical prayer used by thousands of people in the United States? The Pueblo "prayer-stick" is quite as curious a device as those of the heathen Orient; and the feather is the chief part of it.

Prowling in sheltered ravines about any Pueblo town, the curiosity-seeker will find, stuck in the ground, carefully-whittled sticks, each with a tuft of downy feathers (generally white) bound at the top.

Each of these sticks is a prayer—and none the less earnest and sincere because so misguided. Around the remote Pueblo Zuni I have counted over 3,000 of these strange invocations in one day's ramble; but never a tithe as many by any other Pueblo.

According to the nature of the prayer, the stick, the feathers, and the manner of tying them vary. The Indian who has a favor to ask of the Trues prepares his feather-prayer with great solemnity and secrecy, takes it to a proper spot, prays to all those above, and plants the prayer-stick that it may continue his petition after he has gone home.—*St. Nicholas.*

Found the Elixir of Life.

EDITOR AMERICAN FARMER: Our old, old AMERICAN FARMER, that has been an instructive and welcome visitor since my first recollection, must have found the "Elixir of Life," or got points from Haggard's "She." It left Baltimore for Middletown, when it donned a new coat, and is now in Washington, D. C., with a complete new outfit, as young, handsome, and, if possible, more intelligent than ever. As the facilities for travel are so great now, it will no doubt visit every grange and granger from ocean to ocean and from Montana to the Gulf. I always thought it was a "he," but to have so much vitality it must be a "she." I have prophesied that the time would come that women would have to take the lead, and it now looks that way. And I will give advice (I intend to take it myself) to younger sisters that can afford it (novelties come high) to purchase, if it can be had at any price, some of the seed of this Elixir to plant, but would not abandon the old sass and herb until they find it will grow in their soil with success. There is a wide field before us, and we must be equal to the occasion. If I had my farm-life to go over again, instead of knitting stockings for the feet of men I would devote my spare time to improve their heads, and let them go sockless.—SALLY LUNN, Catonsville, Md.

COMPLIMENTS.

"Handsome and Interesting."

The Southern Edition of THE AMERICAN FARMER for March is a handsome and interesting farmers' paper.—*Carrol (Md.) News.*

"Filled With Grand Matter."

THE AMERICAN FARMER came in yesterday, and is filled with grand matter from cover to cover.—JENNIE ATCHLEY, Floyd, Texas.

From an Old Friend.

Fifty-two years ago, when a boy of 20, I left my native State, Maryland. I knew then Mr. John S. Skinner, the founder of the old *American Farmer*. Now, I get THE AMERICAN FARMER, published at the Capital of the Nation, the very place for such a grand old farm journal. I do wish you the greatest success possible.—W. R. STUART, Ocean Springs, Miss.

REMINISCENCES OF A VETERAN.

One of the Old-Time Readers of "The American Farmer" Draws Upon His Memory.

EDITOR AMERICAN FARMER: I feel an interest in the veteran AMERICAN FARMER. It was the first periodical published in America which purported to be devoted to agriculture or the pursuits of the farmer. It was first published in the year of my birth. The enterprise was promoted by Col. J. S. Skinner, who was the first editor and publisher, and by C. Robinson, who was the printer.

In after years I learned that Col. Skinner and my kindred, after completing arrangements for issuing the initial number, were at a loss for a proper title-heading; so they called to their aid a gentleman well versed in Latin lore, who suggested a title in Latin, which was Anglicized and adopted. The same title has from first to last appeared on its title-page, even when issued with a longer name—"Plough, Loom, and Anvil."

While Col. Skinner edited the paper one of its lessons that benefited progressive agriculturists was that Peruvian guano was a valuable fertilizer. Its use was recommended and instruction given as to its proper usage. Another lesson was that plaster was a special fertilizer. At one time Benjamin Franklin made use of plaster on a limited scale as an experiment. He sowed his name in large letters with plaster on Government ground at Washington. In due time the letters became discernible, and his novelty in agriculture created wonder and admiration. The grass or sod on which the plaster fell was a distinct, deeper green than the grass surrounding the letters. This circumstance gave an impetus to the indiscriminate use of plaster as a fertilizer.

In 1840 I subscribed for the Albany *Cultivator and Country Gentleman*, and continued to read it until a few years ago. I contributed to its Bee Department long before Mr. Hutchinson made his debut as a writer. I mailed the first caged queen that was forwarded by mail. Mr. Frank Benton mailed the first caged queen that ever endured transit across the sea.—C. J. ROBINSON, Richford, Tioga Co., N. Y.

PERSONAL.

National Grange Lecturer Mortimer Whitehead will be at the meeting at Green's Farms, Conn., Tuesday, April 6, and at Wallingford, Conn., Wednesday, April 7. April 13, Assistant Secretary Willits and he will be at the great meeting at Alexandria, Va., held under the auspices of the Virginia State Board of Agriculture.

Artificial Limbs.

There are few who realize, how many persons there are in our midst wearing artificial arms or legs. Fifty years ago, when a man lost a limb, there was little for him to do but to stump through the remainder of his life—a hopeless cripple. To-day there are men with but one natural leg running, climbing ladders, and riding bicycles, so that their misfortune is never detected. Mechanical skill has reached a high development in this branch, and a good share of this development is due to Mr. A. A. Marks, of 701 Broadway, New York. For 40 years Mr. Marks has studied how to imitate the muscles and joints of human arms and legs, and his success has been little short of marvelous. His catalog of 400 pages is a remarkable volume—thoroughly interesting, and our readers will be glad to examine it.

Spray your trees and vines if you would have perfect fruit and lots of it. There can be no doubt whatever but that spraying is the best paying operation in the orchard. It gives fruit that is free from worms, scab, and rust. A book, entitled "Spraying Fruits—How, When, Where, and Why to Do It," will be mailed free to subscribers by William Stahl, Quincy, Ill., if they will write for it.

THE

OLD RELIABLE TRENTON

AT CUT PRICES.

Only $3.50, or Free for a Club of Nine Subscribers.

Face View of Watch.

The Works of the Watch.

Full Size of Movement.

THE "TRENTON" is the best watch for the money in the world. Jewelers and experts have been puzzled and astonished by its elegant appearance and perfect time-keeping qualities. It is the result of Yankee genius and years of labor combined. This watch is a marvel for accuracy and cheapness, and we can now, for the first time in the history of watchmaking, offer our subscribers a cheap watch, which, as a timekeeper, is equal in all respects to the best made anywhere, and is superior to any other cheap watch. The "Trenton" has a jeweled balance, removable without taking off the top plate, is a stem wind and stem set, with back ratchet. It is a three-quarter plate, with quick train (18,000 beats per hour). All the movements are carefully regulated and inspected before leaving the factory.

"The Diamond Silver Case" in which the works are placed is the best combination of Silver and Nickel ever used. It is worth more than pure silver, and is better. They are *solid, not plated*, and will wear the same until worn through to the movement. The snap back will keep out the dust and dirt, and is a dust-proof case, thus avoiding the expense and bother of cleaning so often.

THE TRENTON is no experiment. It is an assured success, and pronounced so by all who have seen it. THE WATCH for the million.

THE WAY TO GET ONE.

We offer this splendid, warranted timekeeper free, postpaid, to anyone who will send us a

CLUB OF ONLY NINE SUBSCRIBERS

at $1 each.

Or, we will send the paper for one year and the watch to any address upon receipt of $4.50. For sale $3.50.

Only a few more of them left. Send in your club early if you wish to get one.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

"THE CACTUS."

A Haughty Beauty in a Western Mining Camp, and Her Vivacious Ways.

BY O. H. LEWIS.

"The CACTUS" was the name bestowed upon her in Cinnabar. Her signature, if she had written it, would probably have been Mollie Prescott; at least such was the declaration of Rosewood Jim.

"I sees this yere female a year ago in Tombstone," asserted that veracious chronicler, "where she cooks at the stage station, an' she gives it out cold, she's called Prescott—Mollie Prescott—an' most likely she knows her name, an' knowed it a year ago."

As Rosewood was a historian of known petulance, no one cared to challenge either his facts or conclusions; so the real name of "The Cactus" was accepted by the Cinnabar public as Prescott.

"The Cactus" was a personable lady, comely and round; and her advent into Cinnabar society had caused something of a flutter. Her mission was to cook, and in the fulfilment of her destiny she presided over the range at the O. K. Hotel. Being publicly hailed as "The Cactus" seemed in no wise to depress her, and it is possible she even felt a secret glow over an epithet which was meant by the critical taste that awarded it to illustrate those thorns in her nature which repelled and held in check the amorous male of Cinnabar.

Women were jewelry in Cinnabar, and on her first coming "The Cactus" had many admirers. Every man in camp loved her the moment she stepped from the Tucson stage six months before. From the term "every man," however, a careful writer would except Rosewood Jim. That obdurate scientist, given as he was to the investigation of the inner workings of faro as a philosophy, had no time for such a soft and dulcet affair as love. Another thing, Rosewood had scruples of honor born of his business.

"Life behind a deal-box is a mighty sight too fantastic," quoth the thoughtful Rosewood, "for a family. It does well enough for single-footers, which it don't make much difference with, when a player pulls his six-shooter an' sends 'em shoutin' home to heaven some abrupt. But there ain't no room for a woman with a man who turns cards as a pursoot. Priests an' gamblers ain't got no business with squaws."

As time went on, the score of lovers who sighed on the daily trail of "The Cactus" dwindled down to two. The rest gave out dispirited.

"I'm clean strain enough," said Bill Tutt, in apologetic description of his failure to persevere, "but I knows when I've got through. I'll play a game to a finish, but when it's down to the turn an' my last chip's gone over to the dealer, why I shoves my chair back an' quits. An' it's about that a-way of an' concernin' my love for this yere Cactus girl. I jest can't get her none, an' that settles it. I now drors out an' gives my seat to some one else."

"That's whatever," said a personage known as Texas Joe, who was an interested listener to the defeated Mr. Tutt, "an' you can gamble I'm with you on them views. I loves 'The Cactus' myse'f to a frightful degree, an' thar's times I jest goes about whinin' for her; but yere awhile back I come projectin' around her kitchen, an' 'bing!' comes a skillet at my head, an' that let's me out. You bet I don't pursoo them explorations round her no more. I don't want to get my rope onto no woman who is that callous as to heave kitchen bric-a-brac at a heart that's pantin' for her."

Two lovers still knelt at the shrine of "The Cactus." These were hailed by men of Cinnabar respectively as Rice Brown and Riley Brooks. A description of one would have been a portrait of the other. They were young, good looking, of the breezy Southwestern type, tanned as to face, and lithe and limber as black snakes as to person. These still held the affections of "The Cactus" in siege and demanded capitulation. That estimable virgin paid no heed to their court, nor the comment of onlooking Cinnabar. She pursued her path in life even and unmoved. She compounded her daily bread, compiled her daily flapjacks, and broiled her daily beefsteak by that simple and ingenious process, popular in the Southwest, of burning it on the griddles of her range, and all as composedly as though Leander never swam the Hellespont nor Antony sighed or sung in the ear of Egypt's queen. Still it was possible that "The Cactus" was a shade less thorny in her treatment of Rice Brown and Riley Brooks than of any of the others. Perhaps she was becoming tired out. Be the reason what it may, these two persisted when the others failed, and at last were recognized as rivals.

"All I'm afraid of," said old man Armstrong, the head of the local vigilance committee, "that these yere young bucks 'll take to pawin' 'round for trouble with each other. As the upshot of sech doin's would most likely be the stringin' of the survivor by the Cinnabar committee on larists, these yere nuptials, which now looks some feasible, would be clean busted, an' the camp get a set-back jest that much. I wish this yere maiden would tip her hand in this to some discreet gent, so a play could be made in advance to get the wrong man outen the way. Whatever do you think you'se'f, Rosewood?"

"It's a delicate deal," said that sapient cardist, to go tamperin' round a young female for the secrets of her soul, but I shorely deems it a crisis, and public interest demands somethin' is done. These yere boys is growin' mighty hostile of each other, which I notes last night over in the Gold Mine Saloon, where they was paintin' up for war, an' onless we all interferes yere it's my jedgment some of this yere love-makin' 'll come off in the smoke."

"Thar oughter be a nact of Congress," said Tutt, the pessimist, "agin love-makin' in the Far West, an' the East should be kept for sech purposes speshul, same as reservations for Injuns. The Western climate's too exyooberant for love-makin'."

"S'pose me an' you an' Tutt yere goes over to this young female, an' all polite an' congenial like, we ups an' asks her intentions?" continued Armstrong, in an interrogative way, to Rosewood.

"Excuse me, pards," said Tutt, with sad earnestness, "but I don't think I wants cards in this at all. 'The Cactus' is a mighty spirited lady, an' you all recalls as how I've been pesterin' 'round her in the past myse'f, for which reason, with others, she might take my comin' on sech errants derisive an' bang me over

"WHAT BE YOU ALL DOIN' IN MY KITCHEN?"

the fore'erd with a dipper, or some sech objectionable play. So I reckon I better keep out of this yere embassy a whole lot. I ain't aimin' to shirk nuthin', but it'll be a heap more shore to win if I do."

"Tutt ain' onlikely to be plenty right about this," said Rosewood, "an' I reckon, Armstrong, we all better take this trick ourselves."

The mission was not a success. When the worthy pair of peace preservers appeared in the presence of "The Cactus" and made the inquiries noted, it excited the scorn and ire of that retiring damsel beyond the power of words to describe.

"What be you all doin' in my kitchen?" she asked, her young face flushed with rage and noonday cookery. "Who sent you all canterin' over yere to me with these insultin' questions, anyhow? I demands to know."

"And yere," said Rosewood, in relating the exploit in the Gold Mine saloon immediately after, "she stamps her foot like a buck antelope an' let's fly a stove griddle at us, an' all with a proud, high air, which reminds me a mighty sight of a goddess.

At the time it would seem the duo attempted an apologetic explanation of their presence, and made effort to point out to "The Cactus" the crying public need of some decision on her part.

"You don't want these two young male persons to take to shootin' of each other all up none, do you?" said Armstrong.

"I wants you two sots to get outen my kitchen," replied "The Cactus" vigor-

ously, "an' I wants you to move some hurried, too. Don't never let me find your moccasin tracks 'round this yere water-hole no more, or I'll turn in an' mark you up a whole lot."

"Yere, you," she continued, as they were about to leave, something cast down by the conference, "you all can tell that Riley Brooks an' Rice Brown if they're blamed fools enough to go makin' a gun play over me, to make it and make it hard. Tell 'em I can pick my man out when the smoke blows away."

"Tutt's way right about 'The Cactus' bein' some sperited," said Armstrong, as the two walked away.

"She's shore spirited, an' that's a fact," mused Rosewood, in assent.

The result of the talk with "The Cactus" found its way about in Cinnabar, and in less than an hour bore its hateful fruit. The peaceful quiet of that Gold Mine saloon, which, as a rule, heard no harsher note than the clatter of a stack of chips, was suddenly broken.

"You all who ain't interested yere better take to a lower limb."

It was the voice of Riley Brooks. The trained instinct of the Cinnabar public at once fathomed the trouble and proceeded to hide its many heads behind barrels, tables, counter, and any place which promised refuge from the bullets. All but one, and that was Rice Brown. He knew it meant him the moment Riley Brooks uttered the first syllable, and his pistol came to the front with a brevity born of long practice. His rival's was already there, and so the shooting began. As a result Mr. Brooks received a serious injury which crippled his good right arm for many a day, while Mr. Brown was picked up with a wound in the side which even the sentiment of Cinnabar, inured to such things and inclined to optimism at all times, admitted as dangerous.

"Well," said Armstrong, after the duelists had been cared for at the O. K. House, "yere we be again an' nuthin' settled. Yere we has all this shootin' an' all this blood-lettin', an' the camp gets all torn up; an' still thar's jest as many of these yere people now as there was before, an' most likely the whole deal to go over again."

"I shore abominates things a-splittin' even this a-way," said Rosewood, "but Cinnabar must b'ar it's burdens same as other camps. It can't be he'ped none."

The next day the two duelists were still in bed. A new phase was given the affair when "The Cactus," clothed in purple and fine linen, and with two violent red roses in her straw hat, took the stage for Tucson. The management of the O. K. House reported, in deference to the excited state of the Cinnabar mind, that "The Cactus" would return in a week.

"Goin' for her weddin' troosoe, most likely," said Armstrong, as he gazed after the stage.

"Let's drink to the hope she gets a red dress," said Tutt. "Set out all your bottles, barkeeper, and don't let nary man renig. You bet red is my favorite color."

No one seemed to know the intentions of "The Cactus." The shooting had in nowise disturbed her. That may have been her obdurate heart, or it may have come from a familiarity with the evanescent tenure of human life born of long years on the border. Be that as it may, she experienced not the least concern touching the condition of her brace of lovers wounded upstairs, and took the stage without even saying good-by to them or anyone else.

"An' some fools say women is talkers," said Rosewood, in high disgust.

Three days later Old Scotty, the stagedriver, came in with startling news. "The Cactus" had married a man in Tucson, and would bring him to Cinnabar in a week.

"When I first hears of it," said Old Scotty, with a groan, "an' when I thinks of them two pore boys a-layin' in Cinnabar, an' their rights bein' trifled with that a-way, I shore think I'll take my Winchester an' go an' stop them rites a whole lot; but, pards, the Tucson Marshal wouldn't have it. So she nails him, an' I hears in a saloon over thar she's been aimin' to marry him before she ever hops into Cinnabar at all. I sees him afterward, an' he's a little, measly-lookin' prairie dog, an' from his looks he couldn't get a job clerkin' in a store."

"Thar you be," said Armstrong. "Another case of woman's inhumanity to man. However, if 'The Cactus' has done gone a-flutterin' from her perch in this yere fashion, jest the same we must prance 'round an' give her a high old time on her return. The honor of the camp bein' concerned, of course we whoops it up in style."

And they did.—*Kansas City Star.*

LION HUNTING.

How The King of Beasts Acts in Conflict With a Man.

Mr. Inverarity, a member of the Bombay bar and one of the most distinguished of Indian *shikaris*, lately contributed to the Bombay Natural History Society a paper on the mammalia of Somali Land, where he went on a shooting expedition last year. Referring to lion shooting, he says it is a fascinating pursuit if conducted in the proper manner, which is to track the animal to where he is lying. At the end of the track, which may last for several hours, the eyes suddenly fall on a lion sitting in the dense gloom of a bush a few feet off, or sometimes it leads into a thicket of thorns that cannot be penetrated, when the best plan is to set fire to it and stand at the other end. Mr. Inverarity says he only once found one sitting in the open—a lioness with a well-grown cub. They were sitting on the open sand under a small thorn tree. So well does their color harmonize with their surroundings that he tracked to within four yards of them without seeing them, and would not have seen them then if they had not got up. On another occasion his men pointed to a lioness he was tracking crouching in the grass a few yards off, but although he looked he could not see her until she moved her ears. Like every other animal, the lion tries to avoid man until wounded, and it is only in exceptional cases of there being young ones to guard, or from astonishment at seeing the hunter so close to them, that they charge when being tracked. Mr. Inverarity was never charged by an unwounded one. They charge with the same coughing roar that a tiger does, and come at great speed close to the ground, not bounding in the air as they are represented in pictures; their ears are pressed close to the head, giving them the comical appearance of being without ears. "So large an animal coming at full speed against you of course knocks you off your legs. The claws and teeth entering the flesh do not hurt so much as you would think. The only really painful part of the business is the squeeze given by the jaws on the bone. I felt none of the dreamy stupor Livingstone describes, but, on the contrary, felt as usual. I adopted the course of lying quite still, which, I believe, is the best thing one can do, as you are quite helpless with a heavy animal on you, and they are inclined to make grabs at everything that moves, and the fewer bites you can get off with the better. All the wounds are centers of inflammation and blood-poisoning, and the more you get the less chance you have. The power of the lion's jaw may be inferred from the fact that the lioness that seized me, although it had a broken jaw, scored deep grooves in the barrels of my rifle with her teeth. Some claw wounds were mere scratches, which I attribute to the fact that they clutch at the surface of your coat thinking it is all solid underneath, and so reach the flesh pretty late. In fact, my coat was torn in some places without any corresponding wound beneath. I never felt the slightest shock. Tigers and panthers, as a rule, immediately leave anyone they seize in a charge, but this lioness, having left me, went a few yards to roar at my men, returned and stood over me growling, and then bit my arm; I got no bite the first go off, as she was occupied in biting the rifle."

LAZZARONI.

The Swarming Beggars and Loafers of Naples.

A century ago there were 30,000 "lazzaroni" in Naples. Neither disease nor want has diminished their number. Their children die at a fearful rate, but there are many hospitals for the survivors, and neither board nor lodging costs them much when, at a mature age, they are turned loose into the world to become "lazzaroni" in their turn, like their unknown fathers and mothers. What is a "lazzarone"? it may be asked. According to Colletta, he is a being who lives how he can without working. If he puts hand to honest labor he is no longer a "lazzarone." It may be doubted whether the "lazzarone" will ever become extinct. The "resanitation" scheme will not oust him nor make him change his habits. He is more than half what his climate makes him.

A Neapolitan has said that love is the only occupation of the unoccupied. If this be really so, imagine the condition of Naples! As far as observation goes, the "lazzaroni," as a class, seem to consider the effort of extraneous courtship somewhat too strong for them. They will throw sparks in plenty into the inflammable hearts of their fair acquaintances, but it will be rather from the sheer love of devilry begotten of idleness than because they are in the toils of a consuming affection. "Friendship! nothing more?" whispers a handsome, brown giant into the ear of a maid as brown as himself, whom for half an hour he has been plying with what seem to be insidious advances, and whose dark eyes have begun to gleam with passion. If the girl be a good girl, she answers, "certainly, nothing more," and the chaff continues. Otherwise, a frown and a pout of the full lips tell the man that he may, if he dare run the risk, go a step further. Truth to say, woman is the prime cause of very many of the deaths by the knife. Although human nature is in few cities more human and less divine than in Naples, the verdict which acquits the man who avenges with the dagger the wrong done to his wife or sister, or gives him but a trifling sentence, is held to be very just.

Labor and Machinery.

In agricultural employments, brick-making, the manufacture of small arms, of boots, carriages, etc., the labor has been displaced temporarily by the introduction of power machinery. It is impossible to ascertain with any mathematical exactness, for any number of industries, the displacement of labor. It can only be given for distinct inventions. We are apt to look at the displacement as a finality, and such displacement causes great distress at times, discouragement of the workingmen, and an unrest which is not offset by any theorizing that can be advanced as to the expansion of labor; in other words, to the man displaced by a machine no satisfactory answer can be given. But labor abstractly is greatly benefited by the introduction of power machinery and what are called labor-saving inventions. This is through the expansion of labor, as shown by the increased consumption of all raw materials and the increase of the number of persons engaged in gainful occupations, such increase being largely out of proportion to the increase of population itself, as, for instance, the increase of population between 1870 and 1880 in the United States was 30 per cent., while the increase in the number of persons engaged in all kinds of employment was 39 per cent. during that period.—*Carroll D. Wright.*

Licorice.

The most of the licorice so useful in medicine and so dear to every small boy's heart comes from Asia Minor. The plant belongs to the order of *leguminosa* and the genus *glycyrrhiza* (Greek *glukus*, sweet, and *rhiza*, a root) and is a herbaceous growth, with stems four or five feet high and perennial roots, which are frequently several feet in length and more than an inch thick. We have a native licorice which grows on the shores of Lake Erie and is found even more abundantly farther West. It tastes strongly like the foreign licorice, and if cultivated might be made equal to it. We import from 50,000 to 80,000 pounds a year, valued at from $80,000 to $1,600,000.

BEET SUGAR.

Its Production in the United States—Richness of Our Beets—Requirements of Successful Culture.

THE question of the production of beet sugar in the United States is one which is now exciting widespread public attention. Since 1880, beet sugar has been successfully made in California, at Alvarado, and three large sugar factories are in operation in that State. Last year a beet sugar factory was erected at Grand Island, Neb., and this year another one at Norfolk, Neb., and a large one at Lehi, near Salt Lake City, in Utah. From estimates on file in the office of the Commissioner of Internal Revenue of the United States and from exports, which have already been received, it is probable that each of these factories will make about 3,000,000 pounds of sugar during the present season.

Extensive experiments have been carried on by the Department of Agriculture for the purpose of fixing the localities in the United States where the soil and climate are best suited to beet sugar production. A special experimental station has been established at Schuyler, Neb., where, during the past season, varieties of sugar beets were grown, from imported seeds, which yielded an average of over 20 tons of beets per acre, with a content of sugar of about 13.5 per cent.

Several thousand analyses have been made during the present season by the Department of Agriculture of beets grown in various parts of the United States, and in the great majority of samples of beets which have been sent for analysis, it is found that the content of sugar has been over 12 per cent. There seems to be no doubt of the fact that there is a vast area in the United States where sugar beets of exceptional richness can be grown. This area is confined chiefly to the northern part of our country and to the elevated plateaux of Utah and Colorado, the coast valleys of California and to the States of Oregon and Washington. It cannot be denied, however, that beets of exceptional richness have been grown further south, and especially in the Shenandoah Valley, from which locality, during the present season, many samples of beets have been received of high saccharine strength.

The question of the success of the beet sugar industry in the United States is, therefore, no longer a climatic one nor one of soil fertility. It is simply a question of the willingness of our agricultural population to engage in this kind of work. The growing of sugar beets is not agriculture; it is horticulture, and it is found that the farmers of the United States are very loath to change from their agricultural habits to horticultural pursuits. The amount of labor involved in the growth of an acre of sugar beets is appalling to the farmer who is in the habit of cultivating 40 or 50 acres of Indian corn with a single team. When you speak to such a man about the necessity of spending $30, $40 and $50 on a single acre he is very apt to turn from such a prospect with distrust. Yet it remains true that if sugar-beet culture is to succeed we must adopt, at least for the present, the methods in use in Europe for the growth of this plant. Small areas only must be planted by each farmer, and the land must be especially prepared for the purpose. The sugar beet requires a loose, permeable subsoil, and also a subsoil of considerable fertility, inasmuch as the mineral constituents of the beet are drawn chiefly from the subsoil. It is this peculiarity of the plant which has rendered the problem of fertilizing the soil so difficult; and one of the chief questions which now agitates the German and French farmers is to devise a means by which potash fertilization especially can be incorporated in the subsoil. Deep plowing, subsoiling, and thorough preparation of the seed-bed are absolutely essential to successful sugar-beet culture.

After all it will simply be a question of profit. If a farmer can make more money growing Indian corn, wheat, hogs, and cattle he will continue to do so; if experience should show, however, that in certain localities he can make more by the growth of the sugar beet, he will not be slow to change his methods of farming and enter that field of industry.

In regard to the capital necessary for building factories, it is abundant. There are, perhaps, now in this country several millions of dollars awaiting investment in beet-sugar factories, just as soon as the investors can be assured of the co-operation of the farmers. A beet-sugar factory of fair average size, capable of working 300 tons of beet roots per day, should have tributary to it about 6,000 or 8,000 acres of first-class farming land. It will require from 2,000 to 3,000 acres of beets each year to supply the factory with a sufficient quantity to keep it running the three or four months necessary for manufacture.

With proper rotation of crops, which prevents beets from being grown on the same field more than once in three or four years, it is easy to see that from 6,000 to 8,000 acres of land must be available.

The sugar-beet factories, therefore, must be located with reference to the land which is tributary to them. They should be as nearly as possible in the center of the region where the beets are grown. No farmer should be compelled to draw his beets more than two or three miles at most. It is thus seen that practically all the land immediately surrounding a factory must be available for the cultivation of beets.

The location of the factory must also be governed largely by the cost of fuel and its proximity and by the abundance of water. For these reasons beet-sugar factories cannot become very numerous. In fact, it would require only about 500 first-class factories, worked up to their full capacity, to make from beets all the sugar which is now consumed in this country. But it will be a long while before we see even 100 factories in operation, by reason of the difficulty of educating the farmers up to the point of furnishing the raw material.

The benefit which a beet-sugar factory confers upon a community is not confined alone to the sugar which it makes. A beet-sugar factory is a veritable experimental station. By compeling farmers to adopt scientific methods of culture for beets it induces them to adopt scientific culture for every other crop.

When we study the agricultural conditions of Europe in localities where beet-sugar factories have been established, we are struck with the vast improvement manifested in all kinds of agriculture. A beet-sugar factory located in any community will in a few years be felt in every wheat-field and maize-field and meadow in the whole community. It will increase the value of every agricultural industry, and not only benefit a community by establishing in its center a vast manufacturing interest but also in all the various ways indicated above. Those portions of our country, therefore, in which the soil and climate are suitable for sugar-beet culture should not be slow to encourage the erection of factories.—*H. W. Wylie in American Agriculturist.*

Improvement of Poor Land.

The use of green crops for the improvement of poor land is not so easy as is commonly thought. Green manuring is most effective on good land, and for the purpose of maintaining its fertility, rather than of restoring it when this has been lost. The crop to be plowed under, of course, adds nothing to the land that has not been taken from it. But it is very rare that any land is so impoverished that a thorough plowing and a dressing of lime will not bring some crop that may be turned under with benefit. It might be suggested that such land be plowed two inches deeper than it has been previously, and given a dressing of 25 or 30 bushels of lime to the acre. Then sow with buckwheat in June, using one-half bushel of seed per acre. Then sow one peck of clover seed per acre and harrow it in lightly with a brush harrow or a plank drag. This covering of the seed secures it against a spell of dry weather that might occur.

The buckwheat is harvested in the usual manner, and the clover will make a sufficient growth to go through the Winter safely. The next year a crop of hay is taken, and the second growth is left on the land, to be turned under for corn the next year. When the corn is laid by the land is sown with clover again, and the seed is covered in by a light V-shaped harrow run through the rows. The corn is worked level, so that the seeding may be as even as possible. This alternation may be made once more, when the second growth of the clover is turned under for wheat, and 200 pounds of superphosphate of lime may be applied per acre. By proceeding in this way, and plowing deeply, the land may be much improved in a few years.—*New York Times.*

St. Swithin.

Then there is St. Swithin of Winchester. After he had built the bridge in his episcopal city a woman crossed it with her apron full of eggs, but a rude fellow jostling against her broke them. The woman was bemoaning her loss when the saint passed by, who, lifting up his hands, blessed the eggs, so that they were made "hole and sounde."

St. Swithin, by his express request, was buried in the open churchyard, "thinking no vault was so good to cover his grave as that of heaven." When he was canonized, however, the monks of Winchester took it into their heads that his body ought to have a more dignified resting place, and resolved to remove it to the choir, fixing the 15th of July for its solemn translation. It rained, however, so violently on that day and for 40 days in succession that they abandoned their design as contrary to the Divine will, and instead erected a chapel over his grave, at which many miracles are said to have been wrought.—*All the Year Round.*

The Vatican.

The Vatican, the ancient palace of the Popes of Rome, is the most magnificent building of the kind in the world. It stands on the right bank of the Tiber, on a hill called the Vaticanus, because the Latins formerly worshipped Vaticinium, an ancient oracular deity, at that place. Exactly when the building was commenced no one knows. Charlemagne is known to have inhabited it over a thousand years ago. The present extent of the building is enormous, the number of rooms, at the lowest computation, being 4,422. Its treasures of marble statues, ancient gems, paintings, books, manuscripts, etc., are to be compared only with those in the British Museum. The length of the Statue Museum alone is a fraction over a mile. Conservative writers say that the gold contained in the medals, vessels, chains, and other objects preserved in the Vatican would make more gold coins than the whole of the present European circulation.—*Ashton (Eng.) Reporter.*

A New Lubricator.

An improvement in the preparation of lubricants is a soap formed by treating wool grease with alkaline lye. This is dissolved in water and filtered, and to this solution another of alum is added, forming a brown precipitate. From this, when dry, lubricating oils of any viscosity may be produced by simply dissolving it in fluid mineral oils.

"How is business?" a beggar was asked.

"Poor," was the answer; "took in only 66 cents yesterday—not enough to buy a ticket to the opera."

SALT A MEASURE OF CIVILIZATION.

Salt-Eating Vegetarians and Non-Salt-Eating Carnivoræ.

BY WALTER MAY[illegible]

PROBABLY no article of diet which finds a place upon every household table to-day has been so distinguishing a mark in its use or non-use of the mode and manner of life of the peoples distributed over the face of the earth and such an indicator of their degree of civilization as the article common salt.

Its history leads us away back amongst the Jews to the time of Moses, and to the earliest accounts of the dietary ideas and principles of the Greeks and Romans. At that very early time, however, it is found that the use of salt was confined to the consumers of vegetable diet and disallowed to eaters of flesh. A Mosaic law imperatively required that all vegetable offerings made to the Deity should be accompanied by the presentation of salt. Job asks "Can that which is unsavory be eaten without salt?" Likwise it is told in the account of the orders of sacrifice enjoined upon the early Greeks and Romans that when offerings were made to the gods the meat offerings were presented without and the fruits of the field with a measure of salt. Now, it seems very probable that those religious laws and orders were a natural reflexion and expression of the dietary habits of the tribes and peoples, for it is quite safe to believe that they would consider those foods and gifts to be in the highest degree acceptable to the gods which were most agreeable to themselves.

It is thus suggested to us by the sacrificial laws and orders of the early peoples which we have named, that the salt-eaters were those whose food was made up of green things and the fruits of the field, and that the tribes and nations who fed upon flesh did not use salt. Happily, we are not limited to the statements of the sacred books and oracles for the whole source of light which may be thrown on this subject. Observations of natives and records of travel gathered from amongst tribes and peoples whose habitations are distributed over all parts of the globe abound with incidents and facts which appear to leave no doubt to the question.

The Indo-Germanic languages do not appear to possess a word equivalent of salt; neither do they contain the words and terms which are peculiar to habits and ways of life characteristic of people subsisting upon the fruits of the field. A distinguished German scholar has considered that the Indo-Germanic peoples, at that early period, knew nothing whatever of the need and use of salt, and it was not until a crude kind of agriculture sprang up amongst them that the taste for that article was first awakened. In the descriptions of the early Teutons, Tacitus speaks of them as being just in the state of transition from the life of hunters and wanderers to that of tillers of the soil and eaters of salt, and he further speaks of the development of the taste and use of the article amongst those peoples, and how the tribes waged bloody and exterminating wars with each other for the control of the salt springs.

The Finn languages, to this day, are said to contain no word for salt. The West Finns, who are now pursuers of agriculture, have taken to its use, but have designated the article with a German name. The East Finns, Bunge tells us, are still nomads and hunters, and, as a consequence, know nothing of the use of salt. He also says that the hunting and flesh-eating peoples of Northern Russia and Siberia have a standing repugnance for salt, although salt steppes, salt lakes, and salt springs abound in all parts of Siberia. They eat flesh without salt. Ditmar, the famous mineralogist, records the same of the tribes in Siberia, and says "when I gave the natives some of my salted foods to eat they turned up their noses and distorted their faces strangely."

It has been thought by some writers that the influence of climate had a great deal to do with the taste for and use of salt. It will be seen, however, that not only the peoples of cold regions differ from each other in the respect of salt-eating, but that the natives of the "sun-sown lands" also have tastes as diverse and marked.

In East India, in the Nilgherry Highlands, a pastoral tribe, called the Tudas, was discovered during the present century. It is said that the English had been prevented from reaching that region because of a deadly malaria which infested the swamps and marshes which intercepted the approach to the hights. Finally, however, the shepherd tribe was reached, and it was found that they subsisted wholly upon the milk and flesh of their animals, and the use of salt was not known amongst them.

Sallust, in his day, states that the Numidian tribes scattered over the north coast lands of Africa lived upon the flesh of beasts, and ate no salt, and yet those regions are rich in that product.

Again, the bushmen of South Africa are nomads, hunters, and flesh-eaters, and have no idea of the use of salt.

On the other hand, the negro tribes are natural, although crude, tillers of the soil, and live upon the vegetable products of the earth. In their native regions, which extend deeper into the interior of the continent, the presence of salt is scant and rare; but they are abundantly supplied by the salt industries of the coast, and from the immense quantities which are made there by European manufacturers. The negro taste and relish for salt is most graphically told by the English traveler, Mungo Park, who says "in the interior regions of the land the taste for and use of salt is very comical. To a European it is the unlikeliest thing to see achild sitting with a lump of salt in its hand and licking and sucking it as though it were a stick of candy. I have seen it often, however, although the poorest and lowest castes of the natives are too poor to use it very freely. When, amongst the poor classes, a man is to be designated of affluence and quality, it is said of him 'he takes salt with his meals.' I have myself, when absolutely confined to a vegetable diet, suffered with a longing for salt to a degree which cannot be described. Amongst the negro men the craving for salt was often so great that they gave away all they had—wives, children, and goods—to obtain it."

At the time of the discovery of America the Northern Indians were almost wholly fishers and hunters, and they lived upon the fruits of their skill. We know, also, that the prairies of North America were rich in salt springs and deposits, and yet it is known that the Indians ate no salt.

The Mexicans were tillers of the soil and lived upon the products, and they not only enjoyed the use of salt with their diet, but they understood the method of its preparation, which fact was made known to Columbus by natives of Mexico whom he found on the West Indian Islands.

It is told of the natives upon certain of the Pacific Islands that they live wholly upon herbs and fruits, and that they drink the salt water of the ocean with evident relish and delight.

Most of the peoples of the Australian and East Indian Islands live upon a mixed diet, and they take up with the fish drawn from the sea the moderate quantity of salt which they need with their food. Prof. Bunge relates that he only knows of one people of the Tropical Islands that subsists exclusively almost upon the fruits of the field, and that race is on the Island of Sumatra. Of that people, Bunge says, not only must the thrist and craving be most intense and the use of salt with them a burning necessity, but they hold it almost as a sacred thing and swear by it. A form of oath used in the administration of justice amongst them runs as follows: "May my fruits and harvest fail, my beast die, and I never more eat salt, if I speak not the truth."

Such instances as we have given, with many more, have led a German professor to state the following as a law: "At all times and in all lands those peoples who have subsisted upon a purely animal diet have either know nothing of the nature of salt or they have known it merely to eschew and abhor, while the peoples who have lived upon vegetable foods have found salt to be an indispensable article thereof."

There appears, however, one other law which becomes equally fully established, and it is that the non-use of salt and the inordinate use of it are each co-incident with a low type of development and civilization. We have seen that the peoples who were ignorant of salt, or who despised it, were nomads and without any organized life. They were untamed hunters and lived upon the prey of the arrow and the spear. And the great salt-eaters, what were they but the dreariest, most isolated mushrooms of the earth! In the earliest and crudest period of their existence they were hidden and unknown in the last-to-be-discovered shades and corners of all lands. They fed upon such fruits as nature placed unsolicited before them, or they scratched the earth and ate and knew and were nothing beyond.

Upon the awakening from the parasitic condition of the livers on herbs, and the taming down from the wilderness of the chase, with the gathering of the tribes and races in communities organized and stayed, the tillers or waiters upon the soil gave of their herbs and fruits with a measure of salt to the sons of the "bow," and the latter presented meats in return. And with the further commingling of interest, habits, and tastes it came to be that there were no longer distinctly and diametrically lovers and haters of salt.

And to-day the extremes of taste and necessity in the matter of salt no longer exist. Some persons may have a greater relish for it than others, but none crave and die for it. Even to-day, however, we can observe the remnant of distinctions which are well nigh passed away. In this country, and in all countries, it is seen that the rural communities, who live in the midst of abundance of vegetables and fruits, are the greatest consumers of salt. In France, it is statistically shown that the peasantry, who subsist very largely upon the products of their gardens and small farms, consume almost exactly three times more salt per capita than the population of the towns.

Common salt is a steady factor in all healthy, dietary conditions of life. It cannot be eschewed, or over-indulged, without a penalty for the abuse. If it is attempted to over-ride nature, and use salt in excess in the preservation of meats, we know the tale of disease—of scrofula and uncleanness—which has to be told by the consumers of those meats. And scientific research is said to be unfolding the fact that the craving for salt, with the eating of herbs, is based upon an absolute, undeniable physiological need. As it has already been said, probably no or only few articles of diet better indicate the life, taste, and condition of peoples than the measure of their consumption of salt.

Straws.

There are only 30,000 Jews in Jerusalem, or as many as appear to be in a Long Branch hotel any good day in the season.

Wages are so low in India that men may be hired for $2 a month to do household work. A dollar is a great sum to them and one meal a day the rule.

Air plows, V-shaped, are to be placed before the locomotives of the fast express trains of one of the English railroads. It is expected that greater speed will be obtained by overcoming much of the resistance of the air in front of the train.

When a family row is made public, there is usually pretty good reason for blaming both sides.

THE AMERICAN FARMER.

"O fortunatos nimium sua si bona norint agricolas."—VIRG.

Published Semi-monthly at Washington, D. C., and Baltimore, Md., by

The American Farmer Company,

1729 New York Ave., WASHINGTON, D. C.

SOUTHERN EDITION OFFICE:
225 East Baltimore Street, Baltimore, Md.

Entered at the Postoffice at Washington, D. C., and Baltimore, Md., as second-class matter.

TERMS OF SUBSCRIPTION.

ONE YEAR IN ADVANCE, - - - - $1 00
SIX MONTHS " - - - - 50

Write for special inducements to club raisers. Advertising rates made known upon application.

☞ Our readers will oblige us, when writing to parties advertising in this paper, if they will state that they saw the advertisement in THE AMERICAN FARMER. This is little trouble and costs nothing, but it helps us, and is information wanted by the advertiser.

☞ When sending in subscriptions specify whether for General or Southern Editions. Unless specially directed for the Southern Edition, all subscriptions will be entered for the General Edition.

THE DUTY ON WOOL.

The advocacy of the duty on wool does not rest on selfishness, but on true patriotism. This country cannot be prosperous unless its farmers are prosperous. Were we a manufacturing Nation, like England or Belgium, we might afford to sacrifice the interests of the farmers to those of the manufacturers. Whether the English farmer is able to buy goods of him or not is of comparatively small importance to the English manufacturer. There are less than 4,000,000 people engaged in agriculture in the whole kingdom, or not nearly so many as there are in, say, Egypt. The English manufacturer looks for his market among the 250,000,000 farmers in India, the 6,000,000 in Canada, 7,000,000 in Egypt, 12,000,000 in the United States, and the tens of millions more in every part of the world which English enterprise, diplomacy, and force of arms have rendered tributary to English factories.

With us it is wholly different. Agriculture always has been and always will be the very corner-stone of our prosperity. Unless the farmer makes money no one else can. No matter how much we may extend our foreign commerce, we must still rely on him to take the bulk of the products of our factories. One good County filled with prosperous farmers, who will buy all they need from home factories, is worth more than the whole trade of many foreign countries which appear on the map of the world.

To build up our farmers is, therefore, to build up ourselves—one and all. The money paid them for their products is at once returned to manufacturers and other producers for their products. On the other hand, money sent abroad for products is permanently lost to the country. Very little of it ever comes back.

The encouragement of sheep-growing is essential to the prosperity of the farmers of the country. Scarcely another interest is so widespread. Every farm can and should raise some sheep. The profits in farming, as in every other business, are mainly in utilizing every product, and making the most out of all that one has. A flock of sheep on every farm accomplishes this utilization in a way that nothing else will, and adds enough to the productiveness of the farm to show a balance of profit where in numberless instances there would be an actual loss as the sum of the season's operations. Proper protection on wool, therefore, means the difference between prosperity and bankruptcy to probably 1,000,000 farmers, scattered over the whole country.

Another consideration of the highest importance is that this will insure an abundant supply of the best quality of meat to all our people. There is no more healthful food for man than mutton. It has been one of the chief articles of diet since before the beginning of history. It is due our whole people—rich and poor—that this important food supply shall be maintained and developed. Sheep must be made plentiful in our own land to accomplish this purpose, and they cannot be raised here unless wool is protected.

Without an adequate duty on wool sheep-raising will be as extinct in the United States as is the once-flourishing production of indigo. Wool's value is so great in proportion to its weight that it can be cheaply transported great distances. This brings our wool-growers into direct competition in our own markets with the wool-growers of the vast steppes of Asia, the almost boundless pampas of South America, and the practically limitless grazing lands of Australia and South Africa.

Without restrictions at our custom-houses our markets will be deluged with wools from the semi-civilized countries of the East, and the valueless lands of the Southern Hemisphere. The American sheep will be as rare a curiosity as the buffalo has become; hundreds of thousands of farmers will be reduced to bankruptcy, and degraded from the position of independent land-owners to that of servile laborers on great estates, and tens of millions of the people's money will be taken from their pockets every year to be scattered abroad and forever lost to us.

GRAND wolf-hunts have been a popular Winter sport in many parts of the country, and sometimes as many as 3,000 men—most of them mounted—have been engaged in these. A still more profitable sport would be grand "circle-hunts" for the worthless dogs which infest every neighborhood. Useless and vicious dogs cost this country every year more than all the damage done by wolves since Columbus discovered America. If 1,000,000 dogs could be killed every year it would save the country enough to put all its highways in splendid order.

OUR POLITICS.

THE AMERICAN FARMER's politics are very simple. It has no shadow of allegiance to any party or faction. It has no theories to support on State Rights or Centralization—on finance, religion, temperance, or race issues. It neither values nor depreciates any man because he is a Republican, Democrat, Greenbacker, Free-Silver advocate or Temperance worker or Labor Reformer. It has no candidates for any office, nor will it lend itself to promote any party's success.

It believes, though, with all the earnestness possible, that it is the duty of the Government and of those entrusted by the people with the administration of public affairs to promote the interests of agriculture in every possible way, and that such promotion is the surest way of securing general prosperity. Our policy is precisely that advocated by all the great men whose names shine illustrious in our history. We advocate precisely what was constantly advocated by Washington, Adams, Hamilton, Jefferson, Andrew Jackson, Henry Clay, Daniel Webster, and others, whose genius helped so much to build up our great and prosperous country.

We believe that this country should be made as nearly independent and self-supporting as possible. We believe that our own acres should be made as nearly as possible to produce everything necessary for the food, comfort, and luxury of our people. We believe that this should be done to make us nearly independent as practicable of other countries, to furnish profitable employment for our own people, to protect them from injurious competition with countries whose laborers are poverty-stricken serfs, or whose lands are almost valueless, and to retain in our own land and for the use of our own people vast amounts of money that would otherwise be dissipated abroad.

To this end we believe in protecting every agricultural industry that needs and desires protection, and we believe that protection should be so real and effective as to shut out foreign products. Experience has shown that this protection imposes no hardship upon the people, for with such encouragement the inventive genius and superior skill of our producers are not long in perfecting methods by which the country is given better and cheaper products than had been before obtained from abroad.

We will therefore fight resolutely and untiringly for protection to every branch of farming that requires it. We shall advocate every amendment in the revenue laws necessary to this end, and that public officials shall administer the laws in this spirit. We shall have no friends but those who favor justice to the farmer, and no enemies but those who advocate measures hostile to his interests. We shall be as determined in supporting the duties on rice, oranges, lemons, and other products of the South, as upon the wool, barley, and other products of the North and West, and the various products of the Pacific Coast. The interests of the farmers of the whole country shall be ours, and we shall know no sectional or geographical lines in guarding and promoting their prosperity.

THE WOOL DEBATE.

As we go to press the debate on the wool duty is being resumed in the House of Representatives, with night sessions held to afford full opportunity for all those who are suffering from a congestion of undelivered stump speeches to be delivered of them. It is the intention to close the debate on Monday, April 4, and force the passage of the bill. This is a matter which has been arranged in caucus, so that in all probability the program will be carried out. The bill will then go to the Senate for concurrence, where it will meet with sterner opposition than in the House, and in all likelihood fail of passage in any form.

The issue of THE AMERICAN FARMER for April 15 will contain a full synopsis of the debate, as well as a great amount of other matters of special interest to all sheep-raisers. The paper should go regular to every man who has any connection whatever with sheep raising. He will constantly find in it much of the greatest importance to him.

THOSE AGRICULTURAL REPORTS.

Some of our contemporaries and competitors are very much disturbed by our offer of the valuable Agricultural Report for 1890 as a premium to subscribers, and are asking with more or less malice in the inquiry as to how we obtained them.

The explanation is very simple. It has always been the case, since the Government began publishing documents, that some Representatives would sell their quotas to dealers rather than distribute them to their constituents. Many Congressmen represent City and Manufacturing Districts, and their constituents have no desire or use for agricultural reports. Whether they should sell their public documents or not does not enter into the present discussion. The fact is that they do, and their predecessors have done it from the beginning, and public documents have always been for sale in Washington. A lot of the Agricultural Report for 1890 was offered for sale to us by a dealer, and we accepted the offer, as the book is one of unusual value, and should be in the hands of every intelligent farmer in the country. We are really doing the Government a favor by insuring its distribution to people who will read and appreciate it.

WE WANT every farmer, and every farmer's wife, son, or daughter to write to THE AMERICAN FARMER on any subject that he or she may feel interested in or may think of interest to others.

THE CAUSES OF DECADENCE AND THE CURE.

For 25 years there have been evidences of decadence in sheep-raising in all the older States and agricultural regions east of the Mississippi River. Gradually the industry has moved West and South to the cheaper grazings. An idea has prevailed that sheep could only be raised for wool, and that it was necessary to profitable wool-growing to have pasturage as free as air. In regions that were full of flocks in the early '60s, during the war, there are very few sheep to be found now. The lands are devoted to grain-raising. The fearful supply of corn and wheat and the low market price has depressed the producers, but they continue to plant and sow as never before.

In sheep husbandry the demand for cheaper pastures is not sufficient reason for all this change and desire of going West. There are as cheap lands east of the Mississippi River as there are west of it. There are as cheap lands east of the Alleghany Mountains and as well suited to profitable sheep industry as can be found east of the Rocky Mountains. These cheap sheep-walks are not sought for. They are abandoned, turned out to the commons, and the owners go West to make a fortune and a home. If a young man does not strike out from home and dare the "wild and woolly West" he feels he has no claims to grit and courage.

The situation is really a serious one, and there is a great and unsuspected vital cause underlying the whole matter that has not been defined by those who have studied the question. Along with a love of adventure, inborn and inherited by the descendant of the Puritan and the cavalier, not yet bred out of the Americans, the young men feel an impulse to have a share in the progressive civilization of the West. The old home environments are stale, non-progressive. There is a false idea in society that to be somebodies young men must get away from the home life and ideas of their fathers, to rush into new fields, undergo the ordeal of homesickness, be born anew to a life of intense toil and deprivation until they can "catch on" to new industries and vitalized purposes. Men go West expecting to endure hardships; expecting to work hard; intending to hold on if they can catch on; believing in the sweet by-and-by they shall find fortune.

Young men go West to raise sheep; why do they not raise sheep in the East? Young men go West to make homes, when they already have homes in the East. If they do not own lands, the possibilities are just as good as they will find them in organized neighborhoods Eatt. Lands fit for tillage, and eminently suited to grazing, are as cheap in Maryland and Virgina, almost within sight of the dome of the Capitol, as they will find lands in western Kansas. Why go away from the very markets to which western products are shipped to learn new methods, to engage in new industries, to organize homes, and take the chances of betterment? There is an attraction in the West for young, vigorous, intelligent, enterprising manhood. These, however, are more than counterbalanced by the advantages and possibilities of the worn-out lands of the older States.

This love of nomadic life has not been bred out of our civilization. Unrest, change, something new, is characteristic of the American. This tending of young men to the West may have to run its full course, until there is no more room, no attractions. Then the development o once prosperous, now neglected, agricultural lands shall receive proper and scientific attention. The possibilities, now unsuspected, resources, the basic thought, shall find easy solution, and a prosperity secured upon safe and reasonable methods. The West, now so attractive, shall find a rival in cheaper, worn-out, abandoned lands of the East. In the western pioneering sheep have had a large importance. In the recuperation of the East sheep shall be a prime factor and a means of perpetual good. The adaptation of the sheep industry to agriculture has already begun, and will continue as a blessing to the people—a blessing we have not yet so fully appreciated. We are following the precedents of the older countries with great uniformity, and have not known it.

AN OPPORTUNITY FOR VETERANS.

Union veterans who desire to visit Washington during the National Encampment of the Grand Army of the Republic next September can earn their transportation very easily by canvassing for subscribers to THE AMERICAN FARMER. We will give a round trip to Washington from their place of residence and return for a club of subscribers, proportioned in number to the distance. Write to us for full particulars. This will also be an excellent way for wives, sons, and daughters of such veterans to furnish their husbands or fathers with the coveted means of visiting the great soldier gathering.

FREE TICKETS TO THE BEE-KEEPERS' MEETING.

The annual meeting of the North American Bee-keepers' Association will be held in Washington next September. THE AMERICAN FARMER will give everyone who wishes to attend a fine opportunity to secure free tickets for the round trip from his home to Washington and back by getting up clubs of subscribers for the paper. Write to us for particulars and for sample copies to use in canvassing.

THE AMERICAN FARMER *is only $1 a year.*

THE LEGISLATURE AND THE FARMERS.

The last State election in Maryland was held under peculiar circumstances. The farmers all over the State had become very much aroused. After the election they showed plainly that they felt its results due largely to them, and expected to receive substantial benefits. A special favorite of the farmers had been chosen Governor, and an unusually large number of members of the General Assembly were farmers or had been nominated to please them. Immediately meetings of farmers began to be held in various Counties to discuss legislation desired and declare their wants. These have continued ever since, and resolutions have been passed, petitions signed and sent in, and delegations have visited Annapolis.

What has come of all this? It is full time for the farmers to be stirring. They should ask themselves what heed have the new Governor and the new Legislature given to the numerous declarations and demands? And they should ask their representatives at Annapolis, "What are you going to do about it?"

The legislative session is drawing to a close. How many of the measures specially wanted by the farmers have received attention? Do the Legislators expect the farmers to leave their homes and hang around the Capital on expense, watching and worrying their members to get what they want? Farmers are not accustomed to the ways of the lobby; nor do they believe lobbying to be necessary. Having made their wants plainly known, the farmers depend upon their representatives to give heed and meet their expectations. But this is not being done. Where are the reforms in assessment and taxation? Where are the improved road laws? Where is the Board of Agriculture? What relief has been provided for Maryland grain-growers? Have the fertilizer laws been fixed? What of turnpikes and market fees and hay scales? And have the farmers been given more control of the Farmers' College? Where is the Railroad Commission? And how do the tobacco-growers like to have their warehouses diverted to general storage and the support of a lot of new city officeholders? Two of these subjects are considered more at length in other columns. Is the outlook on the whole encouraging to the farmers? Must they not do something more, if they are to get anything?

To the farmers we say: Be up and doing! Let your members hear from you again, at once, and to the point. Do as others do. Send your delegations to Annapolis and stay there, if necessary, till you get relief. And—gentlemen of the Assembly—don't forget the farmers you represent. Although they do not make as much noise as some other people and don't annoy you continually, they are watching and thinking, and they have good memories. The wants of our farmers have been distinctly and repeatedly made known. If this neglect and indifference continues, don't blame the farmers if they remember it in November of next year!

IT IS an outrage upon first-class producers to put upon the market second-class and inferior products. It is the good that helps to sell the bad, while the poor hurts the price of the better. It is a clear case: the man who has enterprise and skill to produce a really first-class article has a right to expect and receive the very highest market price for such products.

A DISTINGUISHED Judge—now deceased—of swampy northwestern Ohio used to say that his "main idea of interpreting the laws of the State was that northwestern Ohio ought to be ditched." Our main idea in regard to the laws of every State is that all convicts, tramps, and what the English laws used to denominate "sturdy beggars," should be employed in making good the abominable roads which inflict the country.

A SPECIAL OFFER.

The American Farmer for the Rest of 1892 for 50 Cents.

In order to extend the circulation of THE AMERICAN FARMER and give a great number of people a chance to become acquainted with its many good points, we will make a special offer: *We will send the paper from now until Dec. 15, 1892, for 50 cents.* This is a splendid opportunity to get a vast amount of the very best reading matter for a very small sum. Do not fail to embrace it.

Address
THE AMERICAN FARMER,
1729 New York Ave., Washington, D. C.

SAMPLE COPIES.

We shall be glad to send sample copies of THE AMERICAN FARMER to any address that may be furnished. Those who wish to see the paper, or who want their friends to see it, will confer a favor on us by sending in requests for specimen copies to be sent to any address they furnish.

Address all communications to
THE AMERICAN FARMER,
1729 New York Avenue,
Washington, D. C.

RAISE CLUBS.

We want every one to try to raise clubs for THE AMERICAN FARMER. It is a splendid journal, and will find favor in the eyes of all who see it. It ought to be very easy work to get subscribers. We will make good inducements for sons and daughters of farmers to get up clubs. Write for terms to club-raisers, and premium lists.

A Song of Long Ago.

A song of long ago;
Sing it lightly, sing it low,
Sing it softly—like the lisping of the lips we used to know—
When our baby laughter spilled—
From the hearts forever filled—
With a music sweet as robin ever trilled!

Let the fragrant Summer breeze,
And the leaves of locust trees,
And the apple buds and blossoms, and the wings of honey bees,
All palpitate with glee,
Till the happy harmony
Brings back each childish joy to you and me.

Let the eyes of fancy turn
Where the tumbled pippins burn
Like embers in the orchard's lap of tousled grass and fern;
And let the wayward wind,
Still singing, plod behind
The cider press—the good, old-fashioned kind.

Blend in the song the moan
Of the dove that grieves alone,
And the wild whirr of the locust and the bumble's drowsy drone;
And the low of cows that call
Through the pasture bars, when all
The landscape fades away at evenfall.

Then, far away and clear
Through the dusky atmosphere,
Let the wailing of the Killdee be the only sound you hear.
Oh, sweet and sad and low,
As the memory may know
Is the glad, pathetic song of long ago.

—*James Whitcomb Riley.*

By the Editor's Fireside.

IT HAS been said that economy takes queer freaks, and it is true. There are few men or women who have not some habit of saving which approaches very near to parsimony. It may be in the direction of the merest trifle, and yet it is something that seems to belong to the individual and seems a part of his character. I remember hearing of a man who, after reading a letter, always cut off any part of the sheet upon which there was no writing and laid it away for future use. He had great wealth and a fine position. His daily living was not in any way parsimonious, but entirely the contrary, and yet he would take valuable moments in order to economize in this direction. Doubtless it was a habit learned in the days when paper was more expensive, and when with him money was a scarce article. Another man of wealth and leisure always cut open his envelopes with exceeding care in order to turn them inside out and use them again.

There is an economy in which many bread-winners among women indulge themselves, which is anything but a true saving. I use "indulge themselves" advisedly, because it be nothing else but an indulgence which causes them to spend in saving a few cents hours of time which might be utilized in earning dollars, or in using strength for work which might be done by someone better fitted who needs the payment, while the woman herself was resting and preparing for better things. Men are rarely guilty of this kind of economy, perhaps because they look at things in a larger way. Through habit small sums seem much more important to women than to men, probably because for so many centuries money has been doled out to women in such a limited fashion. It is something worth knowing to be able to draw the line between what is true economy and what is needless expenditure.

I heard of a writer who was competing for a large prize for a story. Instead of preparing the manuscript in a way to give pleasure to the publisher at his first look at its pages, it was written in a cramped, crowded way in order to save a few cents in postage. In consequence, the story which would undoubtedly have been successful was rejected and another less praiseworthy took the prize. The rejected story afterward in a more presentable form was accepted and won a large degree of popularity.

It is not often, however, that there is danger of too great an economy in money. It is rather in the direction of strength which is, in the long run, more valuable than the wealth which may be acquired by the saving. It is true that every boy and girl, no matter whether the parents are rich or must use the most pinching economy to live, should be taught how to save something out of an income however small. This training, begun in youth, is not likely to develop misers, but rather teach a thrift that it is well to possess, no matter how unlimited the means that may be had in the future. It is always an excellent thing to begin very early by giving each child a certain allowance and teaching it how to spend it to the best advantage, always insisting that something shall be saved if it is not more than a single penny from the expenditures. In this way, when grown to manhood or womanhood, there will be developed a sense of what constitutes the proper spending of money, which otherwise may have to be learned through trying experiences.

Economy is a relative thing and does not pertain simply to money; there is an economy of strength, of thought, of force, of energy, all equally important. Women more than men need lessons in the larger economy of effort and of strength spent in little things. But as they grow stronger in the realization of their own possibilities this will become a part of their possessions.

* * *

Is IT not a funny thing, when we come to think of it, how prone we all are to think everybody else is a little peculiar, sometimes queer, and if anyone is decidedly opposed to some pet theory of ours, or has gone off into some path which our own feet have never trodden, how very apt we are to dub him a crank? I have come to the conclusion that, after all, it is not a bad thing to be a crank, or at least to be what many people so designate. A little close observation will show you, as it has me, that those people who have that title attached to them are pretty apt to be among the most charitable in thought, and of the brightest intelligence in the community. Many times they are those who have gone on in advance of the majority in some direction, and unless they keep the results of their meditation and study to themselves they are adjudged by ordinary people to have lost their balance. Later on, as their thought and conclusions find their way, as they surely will do if there is any truth in them, the crank designation is withdrawn and "farsighted, prophetic, and intelligent" are terms substituted.

Looking back, those who have done the most in bringing about any great revolution of thought and action which has advanced civilization have almost invariably been termed, if not cranks, something which meant the same thing. Then, as time showed their wisdom, scorn was changed to admiration, and they were written down as benefactors of humanity.

It is a pretty good thing to be named a crank, providing one has the courage of strong convictions, and those in the direction of something to benefit others and not for any personal satisfaction.

FOR BUSY FINGERS.

Some Pretty Things for Making Home Attractive.

PLUSH TOILET SET.

For the bureau scarf take plush of any pretty color, enough to cover the top and hang over the sides one quarter of a yard. Line it with silesia or India silk, and sew lace on the ends a quarter of a yard deep. For the cushion make three bags of unbleached muslin, or drilling, and fill with curled hair, wool or bran, as you choose. These bags must be eight inches long by five wide. Now make three bags of plush of the same color as the scarf, each 10 inches long by five inches wide. Sew narrow lace around the tops of each. Put the filled bags in the plush covers, and fasten together by a ribbon tied around the tops, making a handsome bow at the side. This cushion is to stand upon the bureau.

TEA CLOTH.

Get three-fourths of a yard of white linen; two yards of lace insertion; four yards of lace to match insertion four inches wide. Take a piece of linen 18 inches long and 12 inches wide for the center; draw threads each way all over this piece, leaving it in small squares for the drawn work. The insertion is then set on, then a border of linen six or eight inches broad, with a vine of embroidery done with wash silks running through it. On the edge the lace is sewed on.

SADDLE-BACK SACHET.

Make two bags of black satin of a size to hang over a chair back. Fill it with cotton sprinkled with violet and orris sachet powder. Cover the bag intended to hang over the front of the chair with bolting-cloth cut in points at the bottom and worked in conventional design with Japanese gold cord. Tack gold tassels to the points and between them, and edge the sides of the bolting-cloth and outside sachet with heavier gold cord.

RING NEEDLE-BOOK.

Cover 14 medium-sized brass rings with shaded yellow embroidery silk, using the single crochet-stitch. Fill the centers by stringing, small, black beads, and crossing them in the opening. Join seven of the rings for each side of the cover. This will be with one in the center and six around it. Cut four leaves of fine, white flannel of the shape of the covers. Fasten the leaves between the covers by attaching them to two rings upon each side. Fasten a ribbon with a bow to the joining place of the leaves.

HANDKERCHIEF BAG.

Make a frame for the bag of celluloid, shaped in four points. Paint a vine of wild roses around the edge of the points, and cut it out, following the outline of the flowers. For the bottom, take a piece of rose-colored silk cut square, and join it to one edge of a straight, narrow piece that is long enough to go plain around the four sides of the square. Hem the other edge down and run a line around it so as to form a casing with a frill above it. Use narrow, pink, silk ribbon or cord for draw-strings. Fasten the bottom of the bag thus formed to the celluloid frame with glue, or by small stitches taken through the flowers at the extremities of the points. Instead of celluloid, cardboard covered with silk or velvet may be used, and the flowers embroidered upon it.

BANANA PINCUSHION.

Cut the pattern from the skin of the fruit, then take some soft, yellow silk the shade of the banana and cut out the strips. Line with silesia or other firm, soft

material. Blind-stitch the parts together, and fill out the shape with hair. A small tuft covered with green silk and sewed to the end to imitate the stem completes the ornament. A cluster of these is pretty.

TOOTH-PICK HOLDER.

Cut a piece of cardboard six inches square. Cover the outside with violet velvet. Bind with narrow, yellow, satin ribbon, forming a loop at one corner to suspend. Embroider the velvet with a spider-web pattern of yellow saddler's silk in which to put the toothpicks. Materials: Seven inches of velvet, seven inches of satin, three-fourths of a yard of ribbon, one skein of saddler's silk.

BAG FOR CORD.

Cut two circular pieces of cardboard, five inches in diameter. Cover smoothly with pale-green silk or satin, on which embroider scattered rosebuds of yellow and pink. Make a full puff of silk, seven inches in width, sew it to the two circular pieces two-thirds around. Put a frill of lace one and a-half inches in width around the top. Tack No. 5 ribbon at each end of the joining of the puff and circular pieces. Make a bow on each ribbon at the point of suspension. Materials: One and one-quarter yards of 20-inch silk or satin, one and one-half yards of lace, one and one-half yards of ribbon, one skein yellow Japan floss, one of pink, and one of green, a shade darker than the covering silk.

FANCY APRON.

Overhand together five lengths of oriental or any other pretty insertion, and four lengths of pink ribbon No. 8, alternating them. Finish the bottom with a narrow hem, and trim with ruffle of lace to match the insertion. Use pink ribbon for the band.

FURNISHING A HOME.

A Few Hints to Prospective Housekeepers.

It is not necessary in order to make a house attractive and pleasant to the eyes of those who enter in that it should be built expensively or filled with elegant furniture. The great thing to be accomplished is to individualize it, as it were; that is, make it express something of the character of the home-keeper. Perhaps I should rather use the word taste instead of character, and yet it seems to me that much of the real nature of the person is made evident in her surroundings. At any rate, there will always be harmony in color and arrangement in the belongings of anyone who is harmoniously developed.

It is not necessary, as I said before, that a great deal of money should be used in order to make a room cheery and pleasant. One of the most attractive sitting-rooms that I know of was furnished at an expense of little more than $50. The most expensive chair in the room did not cost more than $6, being a wicker-rocker, in which was run ribbons that matched the prevailing color in the room. The curtains at the windows were made of canton flannel, with cross bands of a tone and color that gave an effect of warmth and comfort. The lounge was home-made, and covered with cretonne of the same prevailing colors as the curtains, while upon the floor was a rug of ingrain of graceful pattern, the colors also harmonizing with that of the other articles mentioned.

Of course, if this woman had possessed more money, she might have added somewhat to the beauty of her apartment, and yet its general effect was of far more luxury than it possessed. A great many stories are told of doing a great deal with a very little expenditure. In many cases this possibility is greatly exaggerated. Something cannot be made out of nothing. And yet with thought and nimble fingers a great deal can be done with far less outlay than is usually considered necessary in furnishing. It is an old saying that necessity is the mother of invention, and it is a true one.

A great thing to be considered is always harmony in color and arrangement. Then use materials which are not cheap imitations of expensive goods, but are pretty and serviceable of their own kind. Cheap cotton plush does not begin to look as well as a fine cretonne costing the same amount of money.

Another thing, it should be kept in the mind what the room is to be as a whole, and all purchases made with reference to that, and not to their individual beauty. I have seen rooms that looked more like a shop than a home, because things which had no possible connection or love for each other—if I may be permitted the expression—were gathered together, with anything but happy effect. Let every article be bought, or made, with reference to what is to be its surroundings.

An otherwise pretty room may be put out of sorts, so that the effect upon the person entering shall be in the highest degree unpleasant, by having upon its walls paper that is anything but restful in color and pleasing in design. If you have a limited amount of money to spend upon wall decorations, buy some of the cheap and pretty papers and use some, which would have been expended in those of richer design, upon the gold backgrounds that are often thought indispensable for beauty, in purchasing pictures that are artistic and have some other claim to consideration than the frame. In fact, in these later days, those who have the finest taste display it in buying simple settings for their water colors or engravings rather than the heavy surroundings that used to challenge the eye and fix the attention instead of the picture inclosed.

WOMEN AT THE WORLD'S FAIR.

Some Things That They Have in Preparation.

It is pleasant to know that the women of this country are coming forward to take so large a part in the arrangements for the coming World's Fair. Not only are those doing so who are under the especial direction of Mrs. Palmer, the woman manager, but from all over the United States comes news of what is being done in order to show that this is indeed the beginning of what may be called the woman's era. Some things in progress will be noticed from time to time in these columns. A few of them are given here. Mrs. J. McClung, alternate member of the board from Tennessee, has procured a wainscoting of the finest and most beautiful marble from that State for the vestibule of the main entrance of the Woman's Building. The south room is to be furnished by Miss Waite, of San Francisco. This joins the main reception room on the east side of the second floor. It is to be finished in the famous red wood of California, which is so beautiful when polished that no carving is necessary except on the mantel. The lumbermen of San Francisco contributed the material. West Virginia lumber dealers, through another of the women managers, Miss Lilly Jackson, have agreed to furnish the room on the north side of the great reception room with the finest woods of that State. Theirs will be a combination rather than one variety.

An effort is being made to have Mrs. S. S. Frackelton, Milwaukee, appointed curator of the china painting department of the Exposition. It is designed to make this as full and interesting as possible, and at the same time highly artistic. As the most of the china decorators are women, it is thought that the Superintendent should also be a woman.

It is intended to have a rare display of the works of the Colonial period in the history of the United States. It is to be secured by women from the 13 original colonies, and is to include specimens of antique furniture, jewels, clothing, legal documents, and personal mementoes of interesting characters of the early Colonial days. Many of the old families of the East and South have treasured antiquities that will be of the greatest interest, and it is proposed to have them displayed in a special room in the Woman's Building. The loan of a collection of Indian works and curios, which will make a complete showing of Indian women's work, has been offered to Mrs. Palmer for exhibition.

It is proposed that in order to have women properly represented as journalists, a paper shall be published daily at the Exposition, in which not only all the writing shall be done by women, but the compositors and all the laborers connected with the paper shall be women also.

Colorado women propose to exhibit a bronze group of statuary, intended to show the closing era of Indian life in Colorado and the beginning of the white man's supremacy in the State. It has been designed by Preston Bowers, and represents a slain buffalo with the Indian chief, Ouray, resting one foot and his gun on the hip of the fallen beast. The group is to cost $10,000, and women only are asked to contribute, and no one to give more than $10.

SOME SPRING FASHIONS.

For the Readers of The American Farmer.

A very dainty fashion and one that is becoming is the fastening of the small bonnet by a cluster of ribbon loops or a roset close up against the ear. It is now well understood that the strings of a bonnet are an important factor in its beauty.

Ruches are used extensively on all kinds of skirts, and those which are fine and soft ruches, made of ravelled silk and of narrow ribbon loops, are provided for Spring.

With all new Spring dresses are worn silk skirts of either the color of the dress or else of its trimmings. These petticoats are finished around the bottom with ruffles—one broad one or two or three narrow ones. The edges of the ruffles are usually pinked. The upper part may be made of some cheap material, with only the ruffles of silk, these being all that will show when the skirt is lifted, as it must be when walking, fashion having decreed it shall be so long that it will otherwise sweep the pavements.

Black dresses are very stylish this Spring. They are brought out in many different varieties—in wool or silk, or in wool and silk mixed. Some of the patterns are in Matelasse effects, others are watered and striped, some are polka-dotted and others again are plain.

Princess gowns are to be favorites during the Spring and Summer. Basques separate from the dress are rapidly disappearing, skirts being draped upon or drawn straight over the edge of the long waist.

Sleeves have lost some of their hight, but are full from the shoulders to the elbow, fitted below this as snugly as possible.

A very sensible thing is the extreme simplicity with which young girls are now dressed, especially those of people with unlimited means. The stylish mother dresses her child in cloth, cheviot, or cashmere, and in Summer in cotton fabrics, of which gingham is the favorite. Her skirts are made short and plain, and she is not allowed to wear corsets until she is ready to enter society.—.

Menu.

FOR LUNCHEON OR SUPPER EN ERTAINMENT.

Potato Soup.	Pickles.	Bread Sticks.
Steamed Oysters.	French Fried Potatoes.	Salted Crackers.
Veal Croquets.	Cheese.	Rolls.
Chicken Salad.	Olives. — Salted Almonds.	Pulled Bread.
Wine Jelly.	Coffee.	Charlotte Russe.

For the Home Table.

POTATO SOUP.

One quart of milk boiled 20 minutes with one-half onion; one tablespoonful

of butter; six good-sized potatoes. Boil the potatoes, mash them smooth and season to taste with salt and white pepper. Stir butter in the potatoes, then add to the boiling milk, stirring until perfectly smooth and of the consistency of cream. Take from the stove immediately, as a little too much cooking will make the soup too thick.

STEAMED OYSTERS.

Drain the oysters, put in steamer and steam until hot. Heat a platter, put on some butter and lay the oysters on it. Pepper and salt. Send to the table very hot.

VEAL CROQUETS.

Put one tablespoonful of butter in a saucepan on the stove, and when the butter begins to bubble stir in an even tablespoonful of sifted flour. Stir this until smooth, then add one-half pint of milk or stock if you have it. Season with salt and pepper to taste. When the flour is thoroughly cooked and the mixture smooth, take off the stove and stir in one pint of finely-chopped veal, and, if you like, one-half teaspoonful of grated onion and the same of chopped parsley. The meat must be cooked before chopping. Set this away in a cool place to stiffen. When cold, make into cylinders, roll in finely-powdered crackers or bread crumbs, then in beaten egg, then in the crumbs again. Put the cylinders in a wire basket and fry to a delicate brown in boiling lard.

PULLED BREAD.

Put a loaf of baker's bread in a moderate oven and let it heat through. About 25 minutes will do it. Take from the oven and with a fork tear it into thin, ragged pieces. Spread these in a pan and put in a hot oven to brown. It will take about 15 minutes to make them crisp and brown. Serve at once in a napkin. This is considered nicer than crackers with the cheese course for dinner or luncheon.

SALAD-DRESSING.

The yolks of six eggs; three tablespoonfuls of sugar; one tablespoonful of celery seed; one tablespoonful of mustard; butter, the size of an egg, and one-half pint of vinegar. Boil vinegar and celery seed together, then strain and set on stove again. Mix mustard smooth with a little cold venegar and add to the boiling vinegar. Add butter, beat egg yolks and sugar together, set vinegar mixture in boiling water and stir in yolks and sugar slowly. Add pepper and salt. Let it boil until it is of the consistency of cream. Set away to cool. Just before sending to the table add a small cupful of cream.

CHARLOTTE RUSSE.

Line mold with lady fingers. Put in filling of one pint of whipped cream, in which stir one tablespoonful of gelatine dissolved in enough milk to cover it. Sweeten to taste and flavor with vanilla. Cover over with lady fingers and set away to harden.

CORN PATTIES.

Grate one dozen ears of corn, add two well-beaten eggs with one tablespoonful of flour, a little salt and pepper and a tablespoonful of milk. Beat well and bake on a well-greased griddle. The corn may be cut off fine instead of grated if preferred. Canned corn may be used instead of fresh.

CREAMED OYSTERS.

Let one pint of milk come to a boil, then add two tablespoonfuls of corn starch wet with a little cold milk, one tablespoonful of butter, pepper, and salt to taste. Take fine-powdered crumbs and scatter over the bottom of a well-buttered dish. Put a layer of oysters, then of cream, then crumbs again, and so on until the dish is even full, having crumbs on top. Set in oven and brown.

LOBSTER BISQUE.

One can of lobster, two cupfuls of milk, three pints of boiling water, one tablespoonful, heaping, of butter, one-half cupful of finely-powdered cracker; salt to taste; as much cayenne pepper as will lie on a half dime. Chop the lobster, not very fine, with a sharp knife, taking care not to tear it. Put boiling water, salt, pepper, and lobster into a saucepan and cook slowly 40 minutes, then have ready in a double boiler the hot milk in which the cracker crumbs have soaked 20 minutes. Stir butter into the stewed lobster, then the soaked crumbs and milk. Send to the table in a covered tureen. If it is necessary to keep hot for a time before sending to the table, stand the tureen in hot water. Excessive cooking will cook it too much.

FARINA CROQUETS.

Heat one-half pint of milk in a double boiler. Stir in slowly four level tablespoonfuls of farina until it thickens. Remove from the fire and add one-half teaspoonful of salt, a dash of pepper, yelks of two eggs, and a tablespoonful of chopped parsley. When cold make in small pyramids, dip in egg, and roll in fine cracker crumbs, then fry in very hot lard.

SPICE CAKE.

One-half cupful of butter, two eggs, one-half cupful of milk, one cupful of sugar, one cupful of raisins, one and one-half teaspoonfuls of baking powder, one teaspoonful of cloves, one teaspoonful of cinnamon, and two cupfuls of flour.

COL. HIGGINSON'S STORY.

Author's Status in England.

"Many years ago a young American girl, whom I knew, found herself in London as the guest of a relative, who was the wife of an Ambassador to England from a Continental State, and a person of great social standing and influence. This young lady, only 17 years of age, was, in a way, to enter upon easy terms the most exclusive society. You can imagine how she enjoyed it. What American girl would not like to go to England at 17 and find herself among the honored, dining with lords and ladies, with princes and princesses, observing all these royal and noble creatures close at hand, and even at feeding times, which is always the most interesting period in any menagerie.

"This young girl enjoyed it enormously. At the first of these entertainments to which she went she found herself shrinking in a humble corner, looking around her to try to decide who were the most distinguished or the most high-born of those she saw. Most of them looked to her rather commonplace, very much like other well-bred gentlemen and ladies. But her eye fell on one very distinguished-looking old man in the opposite corner, who seemed to her a person who might be worthy of any social position; not handsome, rather ugly than otherwise, but keenly intellectual, and in every way distinguished. She was resolved to fix her eye upon him and find out who he was.

"After a while the summons was given to the dinner table—they were summoned to the dining-hall in that complicated and elaborate order of precedence which you will find at the end of the English books on etiquet. It is a very complicated order of precedence, and this young girl saw every stripling lordship, and every young damsel, the scion of an honorable house, pass her by, and she watched from her corner. Still they went, two and two, and two and two, like Noah's more ancient families on a similar occasion. And still she watched for her distinguished-looking old man in the opposite corner, until the last of all, at the very end of that brilliant procession, walked the only two untitled plebians in the room, that young American girl, and that distinguished-looking old man, who turned out to be Samuel Rogers, the distinguished poet of those days, and the recognized head of literary society in London.

"My young friend said that she got two things at that entertainment—she got the most delightful companion she ever had at a dinner party, and she got a lesson in the utter shallowness and folly of mere hereditary rank that would last a lifetime. Samuel Rogers's poems are not read so much now as formerly, but at that time the highest literary honor a man could have was to dine with Rogers. He was one of the richest bankers in London, and was probably or possibly the only person in the room who had won for himself a reputation outside of his own little island; but he was next to nobody in that company, and the little American girl was the nobody."

The Sexes Growing Apart.

A woman complained the other day that she so seldom met a man socially she scarcely knew how to talk with him. "I go out constantly," she said, "but it is to my woman's clubs—I belong to three—to luncheons, teas, and afternoon receptions. Except occasionally at a dinner party, I really converse with so few men besides my husband in the course of the year that I can almost count them on my fingers."

This condition is the result of the trend of the present system of entertaining. The sexes offer and receive hospitality nowadays as separately almost as the Quakers seat their congregations. Dinners and dances seem to be the only social affairs upon which it is safe to count upon the presence of men. The exception, perhaps, is the small proportion of the very wealthy and leisure few.

It is no specially new development. Men have long had their clubs and their separate amusements, and women staid at home except at general entertainments. Latterally and gradually this has changed. Teas, luncheons, and receptions are monopolized by women, and now that they have their clubs as well, the gulf grows wider. A glance at the list of affairs at which men do not assist shows that it is constantly increasing.

These are: Afternoon whist clubs, afternoon progressive euchre parties, and even one, at least, afternoon dancing class, where male partners are not to be had. Every form of social gathering except balls has its few or great afternoon editions, which mean that men are not expected. Women's dinners even are not unknown, though they are not common, and seldom take place at the evening dinner hour.

This is even more noticeably true of smaller places. The average town and village man is seldom fond of society, and he is pleased and relieved that the "women" can have their fetes without him and leave him undisturbed at shop or office. It is a pity, too, for each sex needs what it gains from social companionship with the other.—*New York Times.*

SOME EARNEST WORDS.

To the Women Readers of The American Farmer.

The editor of this department is very anxious to make it helpful and suggestive throughout to the women who read THE AMERICAN FARMER, but, in order to do this she needs your co-operation. She wants to know your needs; what you most desire to have information about; what will be of the greatest interest and assistance to you as the months roll away. She is ready to answer any questions you may ask to the best of her ability, and long experience in this work has given her a strong vantage ground in that direction. Let each one consider herself at liberty to write about what she wants to know. Her letter will be welcome.

How To Succeed.

The following are the famous lines of John Wesley, giving his idea of how to make a truly successful life:

Do all the good you can,
By all the means you can,
In all the ways you can,
In all the places you can,
At all the times you can,
To all the people you can,
As long as ever you can.

SHEEP AND WOOL.

General Management of Sheep.

EDITOR AMERICAN FARMER: When the weather is favorable early shearing is always to be preferred. In this latitude not later than the last few days of April or the first of May. A marked improvement in the condition of both ewes and lambs may soon be noticed after the fleece is off. They should be sheltered during cold rains and chilly nights. They should now have a thorough dipping to kill the ticks and other external parasites. When turned to pasture, salt, mixed with a small quantity of sulphur and copperas, should be kept in covered troughs where they can always have access to it. As sheep like to drink immediately after licking salt, these troughs should be placed near their watering places. The sheep prefers the short, sweet grass on the hilltops to the more luxuriant herbage of the lowlands, and as this is slept upon and eaten short, frequent change of pasture is essential to the welfare of the flock, even if the new grass is not so good as that from which they have been removed.

Sheep have the habit of congregating always under the same shade tree, even though there may be many others in the same field, until their droppings accumulate in such quantities as to produce disease. Such trees must be cut down, or the sheep removed. It does no good to smear a sheep's nose with tar, unless it is applied at least twice a week, from early June till frost. The gad fly is active the entire Summer, and a single application of tar will prevent its attack only for a very limited period. Comparatively few sheep die from grub in the head, and the loss from this cause is vastly overestimated. Bells are useful because they serve to warn the shepherd of an attack from dogs, and enable him night or day to find his sheep; but they cannot be depended upon to give absolute immunity from attack. Yet if every fifth sheep means a bell the danger from dogs is greatly lessened. A flock of sheep should be counted every day. If one is found continuously absent from the flock, it is diseased, and should be removed to the hospital for treatment. Sheep should always be kept clean and their toes carefully trimmed. The shepherd should know every sheep in his flock; their faces differ as much as ours, and no two are ever exactly alike.

Every sheep should wear a ear tag with its number and the owner's name upon it. The flockmaster should be often with his sheep, always kind and gentle and attentive to their wants. Where the sheep lie most, a bit of ground should be worked up soft and mellow, into which they can plunge their noses when tormented by the fly. The ram should never be allowed to run with the flock. He should have a lot containing running water and cool shade, with a clean, dark stall into which he can retreat when troubled by the flies. He should be a good animal, round of rib and short of leg, and without horns, unless he be a Dorset, well covered with close, dense wool, without horns, and having small, fine head. He should be fed a ration of oats and middlings morning and evening all Summer; he should not be fat, but always in good condition. He should possess great vigor and be in every way a typical animal of his race.

The ewes should be regularly fed while on pasture until grass is abundant and the weather warm. Near their feeding-troughs should be lamb-creeps, made by setting posts firmly into the ground, forming a pen 10 feet wide and long enough to accommodate the number of lambs desired.

The bottom board must be nailed high enough from the ground to allow the lambs easy access to the troughs within, but at the same time excluding the ewes. Keep in these troughs a mixture of middlings, flaxseed meal, and oats ground with corn. When weaning time arrives, as the youngsters have long ago been taught to eat ground feed, by increasing the ration they can be made to increase in weight all the time instead of becoming poor in flesh, as is so commonly the case. They should be removed, if possible, out of hearing of the ewes until they have ceased to care for them. At least three ounces of copperas should be mixed with every pound of salt given them. This is necessary in order to destroy the internal parasites, with which they are almost sure to be infested. The ewes should now be confined to poor pasture and milked twice a week until all are dry. The flock through all the Summer should have free access to clear, running water. There must be no bogs or swamps with the range, as these are always a source of evil to the flock. They must be drained or fenced in, or those dread diseases, liver fluke and foot-rot, will attack the sheep. —J. M. MCCANN, Bridgeport, W. Va.

Dehorning Merinos.

EDITOR AMERICAN FARMER: Some years ago I saw a party of merino rams on which dehorning had been tried. An old handler of merino sheep, an Ohio man, with about as much good sense and practical expedients as any sheep man ever had, having bought the lot almost sight unseen, found them "maggotty." They all had horns; and anyone who has had an experience knows how maggots can stay about a horned merino ram's head. "Mack" had handled them every day for a week without curing one of them. The horns were close to their heads, and neither he nor his medicines could reach the trouble. The handsaw had been used to slice off the horns next to the head. Both "Mack" and the situation were getting desperate. The case stood thus: The maggots were under the horns; the horns were in the way, and something had to be done. The necessity was father to the thought, and Mack began to saw them off as an experiment. No one had done so so far as he knew. The first one bled freely, but the dehorner was equal to the occasion. He whittled a pine plug, and drove it into the pith of the horn and stopped the flow of blood. The experiment was a success so far as the maggots were concerned, but such a looking lot of rams nobody ever saw before. There was no uniformity about the job. Some had a horn off close to the head, while the other horn was as nature put it, perhaps wide out from the head. Another had a stub of a horn an inch long, while the other was six inches. The esthetic had not been consulted. Even the pine plugs had not been cut off at the end of the horns. Some were even by accident, and some were four inches long.

The proposition, however, of dehorning merino rams was settled. It was done. The troubles were all over. Not a ram had died. Nobody could doubt the propriety of dehorning in this case, since it was a case of life or death. The occasion was not a rare one by any means with merino rams, and the same treatment may have been resorted to by others. It was a most sensible operation, and may serve as a precedent in like cases. No patent on this.—J., Racine, Wis.

Merino Sheep at the World's Fair.

It is really quite amusing to a man up a tree to know how the merino breeders manage or try to manage the management of the World's Columbian Fair. In the first place, they convinced the officials that no sheep should be allowed to show that were not *good sheep*. Then a sheep was not entitled to be classed as a good sheep unless it had a place in a book of registry. This was so well done that a list of registers were agreed upon, and printed in the rules governing the sheep show. The time of shearing all sheep was confined to April 1, 1893. No stubble shearing or any of the well-known tricks of stubbling, shaping, or fixing show-sheep were to be allowed. This was suggested and agreed to by the breeders of all classes of sheep. A new thought has come to them: A merino sheep, such at least as are to be shown for quality of fleece, are short in the fiber. They want to show more length. They can't do this if sheared April 1. The remedy is more time for growth. Now they are using their "sinch" on the officials to allow them to shear their show sheep Jan. 1. They are making a good case out of it, showing how honest and fair it would be; how it would relieve all chances for frauds of every sort. Anyone who has any knowledge of shearing sheep well know the impossibility of shearing a sheep down to the skin in cool weather—all will be stubbled no matter how good the intentions were. Again: Very few flockowners will care to risk shearing a valuable animal in cold Winter weather.

This rule, perhaps, is intended to apply only to this one class of sheep. It is a question whether or no they would consent for delaine merinos to be sheared in the middle of Winter. It looks very much like the intention is to further restrict the showing of American sheep at the World's Fair. It need not be questioned as to whether the officers of the Fair will modify the rules to suit the registered merino breeders. Of course they will. Having begun there is no place to stop now. The sheep-show, so far as the United States is concerned, will be a restricted Breeders' Exposition. From other parts of the world *good sheep* may be admitted under liberal official rulings. The sheep that are good enough for the farms, for ranges, for wool, and for the great mutton supplies, are not good enough, because not registered in an official book to show with the sheep of the world or the aristocratic flocks of the United States. There is no monopoly about this at all; it is clear, legitimate business, as some few can see it—not all of us. Further developments are looked for. We believe that a World's Fair is a bigger thing, but maybe we are wrong about it.

How to Tell a Sheep's Age.

A lamb has eight teeth in its upper jaw. At one year old the two middle teeth are shed and two under ones take their place. At two years old the next two disappear and two more brood teeth come in their place. At three years there are six brood teeth. When four years old we shall find eight brood teeth, which we call a full mouth. Not infrequently a sheep at one year old will not shed its two front teeth for some reason, and again we have known a three-year old to show a four-year old mouth. When the growth and development varies these variations usually appear. As a rule, at five years old the two front teeth show some shrinkage, and at six the next two and the two front teeth drop out and continue in this routine. They are then said to have ragged mouths. A strong, vigorous constitution will often change this rule, and vice-versa.

Some English Mutton Notes.

London consumes 350,000 carcasses of mutton each week. New Zealand and Australian frozen mutton sells at 3d. to 3½d. per pound by quarter or whole carcass. These frozen carcasses are kept at 15 degrees Fahr. Each carcass is inclosed in their cotton sacks. The flavor is said to be less than the taint or insipidity of stall-fed cattle. Some careful critical test show that New Zealand frozen mutton compares equally well with the best English mutton. To make this test unmistakable, six gentlemen were chosen who are known to have first-rate cooks. The verdict was "freezing does not hurt the meat in the least; that the mutton is excellent, and not to be distinguished from English mutton, and that in the point of age and color it is superior."—*Mark Lane Express.*

The Wool Clip of the United States for 1892.

It is estimated that the 44,938,365 sheep in the United States will clip 316,051,045 pounds of wool. This is a basis of about seven and one-third pounds per fleece. This authority names the numbor of pounds of scoured wool by shrinkage of 40 per cent. in fleeces.

Shearings.

The Boston rule of shrinkage in fleeces is 66 per cent. for fine wools and 45 per cent. for coarse wools.—Galen Wilson in *Practical Farmer.*

We remember the old rule was one-third off old fleeces in the dirt in the West. As we handled only merinos we do not know what was the rule on coarse fleeces. Am inclined to think there was no distinctions as to grades of fleeces.

Kentucky Lamb Beater.

Marion Sweeney, of Washington County, Ky., reports a lamb which weighed 14 pounds at birth. Esquire Brady reports 80 lambs dropped by his 60 ewes and all were saved.

Tennessee Lambs.

Mr. West Jennings, of Round Top, has 11 ewes that have 23 lambs. Who can beat this?

THE APIARY.

THE BEE HOUSE ENTRANCE.

It Should Always Be on the South Side.

EDITOR AMERICAN FARMER: A writer in the *American Bee Journal* says that his hives all face toward the north, and that in his opinion entrance on the north is better than entrance on the south side of the hive. It is evident that some writers are in the field to amuse the people.

If the writer thinks that the entrance of the hive should be on the north, why does he not have the door to his house on the north and open all winter? for it is taken for granted that the entrance to his house is on the south. It is true the two cases are not exactly parallel, but they run side by side enough to be similar.

Even if it were Summer the twelvemonth, does he want his entrance on the back of the house, where the north wind, the northwest wind, and the northeast wind may sweep in? No, he wants the entrance on the south for various reasons.

Has he never seen children playing in some sunny nook on the south side of fence or building, even in Spring and Fall, when we have often cold and windy days? Has he not seen young bees frolic in the sun around the entrance—the south entrance of the hive?

The entrance to all houses occupied by man or beast should be on the south. The door of the stable or poultry house might be left open on the north side all Winter and the occupants might live, but that would be no recommendation of the practice.

It is cruel to place the entrance of house inhabited by any animal, even a bee, on the north and keep open all Winter, and the entrance to every bee house should be wide open all Winter. The champion of the north entrance says that bees are not so likely to fly out in Winter if the entrance be on the north. That may or not be the case, according to circumstances. If the sun strikes on the back of the hive and warms it up, the bees will go out wherever the entrance may be, and they ought to go out for purifying flight.

The fact that bees leave the hive, enticed by the warmth at the entrance, fall in the snow and perish, is nothing against the "front entrance." While one bee flies out and drops in the snow a dozen or a hundred fly out and return. In every hive a large number of bees, usually the old bees or bees hatched before the close of the previous season, die during the Winter, whether they fly out or not.

It is not vain to suppose that the bee that drops in the snow is an old bee; that the time to die had come, and that it would have come then, or before Spring, if the bee had remained in the hive. At all events, experience shows that a larger percentage of bees live through the Winter when they fly than when they are shut in. And the survivors are more vigorous when the hive stands out of doors with the entrance always to the south and wide open. That is the natural way.—JULIA ALLYN.

BUSINESS FOR BOYS AND GIRLS.

The Adaptability of Bee-Keeping for the Young.

EDITOR AMERICAN FARMER: One of the great problems of the day is how shall we entertain our boys and girls the better to keep away from them the evil influences that are lurking throughout our land. Terry, of Ohio, says keep good fires and good lights in your best rooms, and give them the freedom of the house to invite their mates, where our boys will find enjoyment preferred to that of the brilliantly-lighted saloon or billiard hall. Mrs. Harrison, of Illinois, would have large rooms for the boys where they would be provided with mechanical tools and devices, that their minds may be developed and their desires gratified by making wind-mills, boxes, carts, sleighs, Dutch ovens, etc. I doubt not this is all well enough so far as it goes, but we are "many men of many minds," and as the boy is father to the man and the girl mother to the woman, we must not expect they are all going to choose the same vocation. Could you see the boys gather around me, yes, and girls, too, at all times when I am busy with the bees, I think you would say with me that fully as many could be interested in this fascinating, life-giving pursuit as any other one channel. Of course, with a small apiary we need a little shop and some tools *a la Harrison*, where their days of vacation can be pleasantly and profitably spent in getting their appliances ready for the coming season. And we have many works, published by such men as A. J. Cook, Professor of Entomology at our State Agricultural College; A. I. Root, of Medina, O., whom for high moral tendencies there is no better; Thomas G. Newman, Rev. L. L. Langstroth, and many others, all of which are as fascinating to read as a novel. Here we have entertainment for our long Winter evenings in our pleasant homes, *a la Terry*. Bee-keeping being a science, is at once attractive and fascinating. To the lover of Botany it adds a charm never before experienced. It is also lucrative and gives an inspiration that play never does. At one of our State Bee-keepers' Conventions this matter of entertaining and instructing the young came up. There were boys there with their fathers and they were asked how they managed to interest their boys. The reply was they are given a portion of the apiary to make what they could from its proceeds.

Another worked the apiary on shares, and you should have seen their bright, intelligent, healthful faces as they gave their experiences. One young lady had raised the past season nearly half a ton of comb honey, and I need not tell you she was happy, or that she had any idea of applying for a job of dish washing at $1.50 a week. Last Fall, while I was buying honey in Mecosta County, this State, I found an apiary of 100 colonies that had been cared for the past season by a girl not yet 18 years old, and the product had been nearly three tons of comb honey. I mention this to show "what a woman can do," and while bee-keeping is far from being child's play, I could cite you to many instances where it has been selected as an out-door exercise, and a means of promoting health with the best of results, and by those who had given up hope of assistance through the use of medicines. And here were I capable I should like to give a lecture upon the results of our High Schools as regards health. How many ruddy boys and beautiful girls enter a High School, and in due time come home with a beautiful diploma and a ruined physique, all for the lack of something to give vital energy while the brain is being so wrought upon. I should like to see a small, well-kept apiary in connection with every institution of learning, similar to that we have at our State Agricultural College. It is thought by many that bee-keeping is rather insignificant in its dimensions. Allow me to give a few facts: It is positively known that there are 300,000 bee-keepers in the United States and Canada. Putting the average at the very low estimate of 10 colonies each, and we have 3,000,000 colonies of bees. Putting the average production of honey at 30 pounds each (mine averaged 75 pounds for eight years), and the annual production is 90,000,000 pounds. Again, we estimate the selling price to average 10 cents per pound, and we have an annual income of $9,000,000 from honey alone. Add to this the production of wax and the increase in bees, and we are safe in saying that the annual income from bee-keeping is in round numbers $10,000,000.—GEORGE E. HILTON, Secretary, Michigan State Bee-Keepers' Association, Fremont, Mich.

SPRING MANAGEMENT.

A Talk by the President of the Ohio Bee-Keepers' Association at the Late Convention.

President Charles F. Muth, of Cincinnati, in his address at the late Ohio State Convention, had the following to say on the subject of Spring management of bees:

Every bee-keeper must decide for himself whether he shall produce comb or extracted honey, or both. The main question is how to produce the largest crop. He may have the most prolific queens, he may have a successful Wintering, and his colonies be in fine condition four or five weeks previous to the beginning of the honey harvest, but, misled by fine weather and the lively flight of his bees, he forgets that flowers generally yield no honey just at that period, and that the consumption of their stores is greatest when brood-rearing is at its best. Everything may seem prosperous until he sees dead larvæ at the alighting board.

Upon examination, he finds the hives full of bees, no stores and little or no larvæ in the cells. The bees, being short of food and moved by a sense of self-preservation, had sacrificed their young. They had pulled their larvæ out of the cells and out of the hives in order to make their stores hold out as long as possible.

The bees ought to have been fed a month previous to this time, and now they must be fed without delay and plentifully, so as to induce them to breed up again. But as it requires three weeks before the first young bees will hatch out after the eggs are laid and two weeks more before they will become foragers, and as the honey harvests hardly ever last longer than four or five weeks, the colonies will be in good condition again just in time to be too late for that season. The bee-keeper has lost the earning of his year's labor, while, by a timely feeding, he would have secured a good crop of honey. It is just there where most bee-keepers make their mistake.

The bees' consumption of their united stores begins with brood-rearing, and in the same ratio that the brood increases the stores decrease. The question whether more honey is consumed by outdoor or indoor Wintering is therefore immaterial. The difference is small. The old bees only are foragers, while their young stay at home, taking care of the brood, preparing the cells for the reception of eggs and honey, ripen the honey and close the cells when filled. It is therefore of great importance to have the colonies strong in old and young bees, and ready for the harvest at the time the season begins, which is, in southern Ohio, the latter part of May, the time when the white clover comes into bloom.

Moving Bees.

EDITOR AMERICAN FARMER: A few notes on moving bees may be a seasonable hint to some. The writer has had 20 years' experience in moving bees; therefore the following advice is personal experience. The first thing to do, if you have many bees to move, is to fix a wagon (any wagon used on a farm will do, but a spring wagon is best). Make your wagon bee tight; that is, have it covered with wire cloth or some other material. Have a door at rear end of bed that you can open and shut easily. Then take your wagon to the center or as near the bees to be loaded as you can well get it. Loose your team and drive it clear out of the way. Now, load your bees, and if the weather is anyways warm always be sure to give them clustering room above, or somewhere in the hive where they can leave the combs, for if you do not do this, as soon as you begin to move the bees they will fill themselves with honey and create such a heat that your combs will likely melt down and a great many bees will be smothered.

After giving each hive plenty of clustering room and ventilation, load up, shut your door, hitch up and quietly drive to the new locality. Take out team and move them as before, out of the way. If you will follow these simple directions I think you will seldom have trouble in moving your bees. If you are a beginner, and only have a few bees to move, place them in the ordinary farm wagon, put your wagon sheet over them, tucking it down close all around them, and if you will use your best judgment and always be careful there will be less people and stock stung in moving bees. It is a very good plan to carry a light smoker and a bee vail along, so that if the bees should break out you would be ready at a moment's notice to settle them and move on as though nothing had happened. Now, if any farmer or beginner in apiculture wishes to know anything further in regard to bees, rearing queens, forming nuclei, artificial swarming, or anything pertaining to bee-culture, if you will make your wants known to me I will in my humble way, and to the best of my ability, answer you through this paper.—JENNIE ATCHLEY. Floyd, Hunt County, Texas.

Spring Care of Bees.

EDITOR AMERICAN FARMER: March, April, and the first half of May is the most critical time in the experience of the Northern beekeeper, and I suppose it is true to some extent for the Southern beekeeper. It is comparatively easy to Winter bees till the first of March; then comes the tug of war. The losses of Winter are a mere bagatelle when compared with those of Spring.

Spring dwindling is the foe to be dreaded most. The sunny days of Spring lure the bees out for a fly or in search of pollen. If the wind be cold they get chilled and thousands of them die before they can return to the hive. The hives thus become depopulated before young bees can be reared to take their places.

This can be prevented to a certain extent by surrounding the apiary on all sides but the south by a high and tight board fence; also by the use of double-walled hives. The sun does not warm a double-walled hive so quickly as a single-walled one, and the bees stay in the hive till the weather is warmer and thus escape some of the cold winds.

Don't let your bees starve just for the want of a little attention. Examine every colony as soon as the bees fly freely, but don't open a hive in-feeezing weather. If any are in want of stores, feed them at once. Help them to build up into good, strong colonies by the time the honey season opens, and they will repay you many times over for the care you may give them. Look them over often and see that they don't starve or come very near starving. Just think of the labor and pains required to put an apiary in good condition for Wintering and then kicking over the prospect for a good honey crop by a little lack of attention in Spring.

If any of you are letting your bees starve, I hope you will do better and give the little fellows enough to eat. Sometimes a pound or two of honey or sugar syrup is enough to fetch them through. Keep them warm and see that they have a prolific queen and plenty of food, and you will have a hive full of bees at the opening of the honey harvest, and you may expect a good crop of honey.—D. I. WAGAR, Flat Rock, Mich.

To Prevent After-Swarms.

As soon as a swarm issues, mark the parent colony, and the next day uncover the hive and introduce a virgin queen by simply allowing her to run in between the combs. This will prevent after-swarming, for the following reasons: It is a well established fact that by departure of the old queen the queenless colony depends upon its queen-cells for its future queen, and as the first queen thus hatched destroys all the remaining queen-cells, unless signaled by the "piping" of a second queen, this new queen will take the old queen's place, hence there will be no after-swarming; the queen, if signaled, will leave with part of the bees, called an after-swarm. As the next queen hatches, if signaled by a third, another swarm will issue, and so on. By introducing a virgin queen about two days old (which every bee-keeper should have at that time), all queen-cells will be destroyed by that queen, which will be mated in a few days, thus effectually preventing after-swarming and advancing brood-rearing from 10 to 15 days, writes a correspondent of *American Bee Journal*. Bees in such a state of queenlessness never destroy a virgin queen introduced at the top of the hive, not knowing whether such queen came out of their own cells or not. Colonies thus treated will not only discontinue swarming, but if given sufficient space will not swarm again that season.

Hummings.

A correspondent of one of the bee journals says that his hives averaged to yield nearly 100 pounds of honey per hive, most of which came from black-jack acorns, which had been punctured by some insect and exuded a juice that was utilized by the bees. The bee-owner does not always know from what source his bees may be able to find honey, as they sometimes find it where he would not suppose it to be.

The best time to begin building up colonies is in September. Special care should be taken that every colony has a young, vigorous queen, and that there is ample room to deposit eggs and rear plenty of strong young ones, to keep up the vitality of the hive until Spring. They should have abundance of honey to keep them not only through the Winter but far into May.

Everyone has noticed that when bees start out in the morning they fly around in the air, continually enlarging the circles. It is more than probable that in doing this they are trying to catch the aroma of flowers borne upon the wind. They determine which is best and nearest, and then "strike a bee-line" for it.

Bees are often of more benefit to the farm than the owner supposes. Their value is not entirely dependent upon the amount of honey they make, but it would not be easy to compute their services in increasing the productiveness of plants by acting as agents for the distribution of pollen.

There should be a good supply of water near the hives these days. When bees come out of the hives in the Spring they usually look for water the first thing, and the nearer the supply the less danger there will be of their getting chilled to death on their way home.

Care should be taken to keep the passage to the hives as free as possible from weeds, briers, and other obstructions. Many valuable bees, returning home with a full load, are lost within a few yards of the hive by getting entangled in the briers or weeds.

A full and strong stock of bees at swarming time contains about 20,000 workers and one prolific queen, the mother of the whole colony; also 600 to 800 drones are about the number to be tolerated.

Leave the Winter covering on the hives until the middle of May, if the weather is cool. It will be unsafe to take it off until the last of this month, in any event.

Just as soon as the weather will justify it every colony should be examined, and combs of sealed honey given to those whose commissary department is running low.

Never have a hive face eastward. On chilly days it tempts many bees to their destruction.

COTTON-GROWING.

How to Solve the Problem of Over-Production.

EDITOR AMERICAN FARMER: The cotton crop of this country raised during the past year amounts to nearly 8,000,000 bales, averaging 480 pounds. This is 1,000,000 bales in excess of the demand, and the result is that ordinary cotton is now selling for six cents per pound or less, which does not equal the cost of production.

There are two methods, through either of which the cotton-producer can make his crop the most valuable. One of them is the restriction of production. A common saying among cotton-growers is that it takes 13 months in every year to raise a crop of cotton. It is true that the cotton-grower requires all his time from January to January to plow, plant, cultivate, gather and prepare his crop for market.

The writer of this article was in southern Arkansas in January, 1862, when the Legislature of that State enacted a law prohibiting anyone in the State from planting more than two acres of cotton to the hand. Southern Arkansas was at that time one of the very best of the cotton-growing regions, and it was customary to plant 10 acres of cotton and five of corn to the hand. It was impossible for one person to gather the crop from eight or even four acres of cotton, so that under this system all the women and children of the farm had to enter the fields in September and "pick cotton" all the Fall, and sometimes even until January. Much of the cotton was lost and a great portion of it damaged and reduced in value by bad weather. All other crops were neglected.

Under the Arkansas law, which was in force for three years, the two acres to the hand were cultivated like a garden, the cotton, picked as fast as the bolls opened, being clean and perfect, and having a better staple. This cotton was worth two or three cents per pound more than cotton produced from the same lands by the ordinary methods. Besides this, the farmers had plentiful crops of corn, wheat, oats, potatoes, and other things to eat. Farms were kept in better condition, and had the times been normal, meat could have been raised not only for home consumption but for sale.

If through legislation in any other way the cultivation of cotton is restricted to three acres to the hand, the average production to the acre would be increased to at least a bale, and the crop be quite large enough to meet the demands, while the quality would be vastly improved.

It is doubtful, however, whether by legislation or in any other way cotton cultivation can be restricted, as the example above given was a war measure, adopted by the Confederate Legislature of Arkansas, and resulted in the production of food enough to sustain large armies.

There is another method which would rescue the cotton-grower from his present condition. That is, not to sell any cotton, and to utilize all the parts of the cotton plant. Some cotton-raisers will probably reply to this remark: "The writer of that article is a crank. What are we to do with our cotton if we don't sell it? We can't eat it, or wear it, or drink it, in its natural state." Do not try to do any of these, my friend. Spin the lint into yarn and sell it. If you only plant a few acres, unite with four or five of your neighbors who are like yourself, get a spinning machine, and make yarn. Put it in the gin-house when your cotton is ginned, and instead of baling up lint, which you sell at six, eight, or 10 cents per pound, sell your yarn for double these amounts. The same power that runs your gin will run your spinner, and the man that manages the one can manage the other.

Of course the cotton seed should go to the mill, but the "cotton-seed mill-trust," or combine, should be broken down by the erection of cheap mills in every neighborhood, where the oil can be extracted and the meal and cake manufactured cheaply.

The cotton stalk could also be made a source of profit, for it can be manufactured into pulp for paper by cheap processes and with machinery that cost but little and is easily managed.

Thus every part of the cotton could be utilized, and the crop made valuable to the producer, instead of, as now, to all the balance of the world except him. The cotton farmer must emulate the French in utilizing all his products. For instance, if a horse dies in Paris, his hair goes to the mattress-maker or the costumer; his hide to the tanner; his flesh to the dogs' and cats' meat-man; his bones to the button-maker; his hoofs to the glue-pot, and the refuse to the soap-maker.

So with the minute and careful French farmer, who generally owns the little plot of land he cultivates. Nothing is lost, and as a result of this frugality, France was able, after a most disastrous war, to pay a thousand million dollars indemnity, and is to-day rich and prosperous. If the French Government advertises for a loan of two or three hundred million francs, five times that sum is offered by the small farmers, who always have money and prefer to invest it in Government securities.

If the American cotton-growers could manage to unite both the methods suggested in this article, they would become the richest and most prosperous farmers in the world, and it is possible for them to do so.

If a few men in any section would make the experiment by restricting their own crops and carrying out the other suggestions, the success of the plan would undoubtedly induce all the other cotton-growers to follow the example. Let a dozen men in any or each of the cotton-growing States agree among themselves to plant only three acres of cotton to the hand and put the balance of their farms in grains and grasses, and to manufacture their cotton into yarns. Their prosperity would first attract their neighbor's to a similar course, and from their customs thus established the system would become universal.—R. P. SAWYER, formerly of Corinth, Miss.

First Parishoner—I think we ought to raise Dr. Thirdly's salary.

Second Parishoner—I don't. He is such a conscientious man that he would feel bound to preach longer sermons.

They say that we are to have absolutely waterproof leather.

THE GARDEN.

Pluckings.

Break ground early, so as to allow all the weed seeds to germinate.

Make it a point to secure a stout, vigorous growth with the cabbage and tomato plants in the seed-bed.

Plant everything in the longest rows your land will allow. Then you can make your cultivator save you lots of hoeing.

Pine sawdust should never be used as a mulch. It has been known to kill pear trees and plants when applied around their roots.

Plant beans in rows two feet apart, drill in one-third of a bushel per acre of the beans, and from one-third to one-half bushel of marrowfats.

The principal trouble in raising Spring turnips is the turnip fly, that so often attacks the plants as soon as they make their appearance above ground.

As far as possible it is desirable to grow only male asparagus plants, as the females, if not watched and cut off, will go to seed and produce an annoying crop of weeds.

The turnip, cabbage, cauliflower, and rape all belong to the same family. The turnip's greatest difference from the other three is in its bulbous root, which characteristic it soon loses if allowed to grow wild.

Press the soil firmly upon fresh-sown seed. "Firming the soil" is an important element of success in starting seed. All plants should also be set firmly in the ground, and stripping off some of the leaves is a benefit.

Shaffer's raspberry has been called the "poor man's berry," because it is the stronger grower, is perfectly hardy, is good for preserving, and will thrive where others will not. The objections to it are its dull color, and its lack of firmness of flesh, which interferes with shipment.

Lime is the best check and preventive of mildew upon cucumbers and diseases of the potato. As soon as the vines show signs of disease powdered lime should be sprinkled over every part of the plants that are affected, and the operation repeated until they have resumed a perfectly healthy and normal appearance.

Lime water is also a good insect destroyer, and may be used to advantage upon almost all the insects that trouble the fruit or vegetable garden, not even excepting the Colorado potato bug, if the application is made while the bugs are yet young and tender. It is one of the things that may be used freely without danger.

You will find it a good plan to take two or three plants of rhubarb from the old bed, and with a case or thin-bladed knife divide each into small pieces containing but two or three eyes, and set them in well-enriched soil in rows five feet apart, and three feet apart in the row. A liberal top-dressing of well-rotted manure will promote a vigorous growth.

The new method of growing celery is by surface culture. It is thus easily produced and should have place in every garden; late transplanting has succeeded best. By the new onion culture (transplanting from hot-bed) earlier crop is secured and the bulbs are more uniform in size. Sufficient time saved in not being obliged to weed the young onions to make up for the extra time required for transplanting, and there can be no failure from the (good) seed in starting, as often occurs.

After raking off the trash that may have accumulated on the lawn after the falling of the leaves, top-dress it with a mixture of soot, wood-ashes, and freshly-slaked lime. To prepare the compost, spread a quantity of well-rotted manure on the barn floor, and on this spread a few bushels of lime, soot and wood-ashes, and then mix the materials thoroughly. Sow broadcast just before a good, soaking rain. The intense green color that follows the application is largely due to the soot. The value of soot is much underestimated.

The seed for late cabbage should be sown the last week in April or the first in May. It is a mistake to sow very early. If the bed is made along a tight fence or against the side of a building, the little black flea will not trouble them. Do not allow them to stand too thickly. The 15th of June is early enough to transplant, although it can be done the 1st. They will succeed if put out the 4th of July. If your plants are good, your land enriched, and the hoe freely used, you may be about as sure of a good crop of cabbage as of anything in this variable world.

The present month is a good time to set out new strawberry beds. Of course, you will not expect fruit from your new beds this season. Next year, however, they will bring you quite a good crop—a much more plentiful one, in fact, than if you should wait till August to plant out your beds. Beds set out in the Spring rarely fail to grow. Do not over-manure your new beds. Moderate, yet not miserly, manuring will insure you berries; prodigality in this respect is apt to produce a rank growth of leaves, but very little fruit. Fork, clean, and mulch established beds.

Too many farmers neglect to supply their own tables with any suitable variety of vegetables and fruit. By a small outlay of money and labor every farmer can keep his table supplied with a succession of fresh vegetables through the whole season. Spinach planted as soon as the weather is suitable will furnish the finest greens before other vegetables come on, but if it had been planted in the Fall it would have come into use this month, under ordinary conditions. Then radishes, lettuce, cucumbers, tomatoes, peas, beans, sweet corn, Summer squashes, beets, melons, and turban squashes will furnish a welcome and wholesome addition to the farmer's fare throughout the season. If, in addition to these there are a few roots of rhubarb, a bed of asparagus, a bed of strawberries, and a small collection of small fruits, a farmer may live in luxury and health, such as his occupation ought to afford, instead of the tiresome monotony and scarcity of the good things of the farm that many farmers put up with from sheer carelessness, thoughtlessness or laziness.

Potatoes.

Clean culture is absolutely essential to the successful yield of potatoes. The top of the soil should be well stirred to retard evaporation.

Potatoes should only be dug when the ground is so dry that it will not stick to the tubers. Those to be marketed and the smaller ones should be picked separately, the latter being good food for hogs.

The most effective tool for digging potatoes is a five or six-tined fork. Where the hills can be seen it is possible to throw out nearly all the potatoes at a single thrust by running the fork around the outside of the hill and under it.

To be the most successful, a farmer should be careful to kill the weeds before they grow to any extent. By removing the seed soon after it sprouts the best results will be obtained and a great amount of labor saved.

In most cases, early planting is best, and the period should never be later than from the middle of April to the first of May. To enable the midday sun to shine fully between them, the rows should be made from north to south.

To cultivate potatoes to perfection, they should be planted in a deep, rich, black, sandy loam, with natural drainage. Heavy clays produce rank articles, seldom fit for human food. Potatoes on low, wet grounds are generally soggy.

In applying fertilizing material to the potato ground, rank, undecomposed animal or vegetable manures should never be used. If farm or stable manure is to be used, it should be broadcasted the Autumn preceding the season of planting the crop.

A good way to destroy the Colorado beetle is to carefully remove the old bugs off the early patches, by carrying a large pan in one hand and brushing them in with the other, placing midway in the rows a pail partly filled with ashes and water, in which to empty the pan.

Care should be taken that the seed-bed is thoroughly prepared. Good soil should be plowed moderately deep. If sod, a jointer should be used, so that cultivation will not be impeded by grass. The soil should be pulverized to a good depth by harrowing and cross-harrowing.

Sunshine on potatoes tend to make them bitter and destroy their flavor. When digging them, a good plan is to pile them in the shape of a cone, covering them with straw or the vines. Some prefer to sack them at once, in this way preventing the sun from affecting them.

The growing of potatoes on heavy and unsuitable soil injures the potato market and keeps down prices. Were the markets always supplied with mealy, well-flavored potatoes, the class of persons who do not regularly buy potatoes by reason of the fear of obtaining rank, soggy articles, would regularly buy them, and the demand for a good article would greatly increase.

The quality of the potato has been vastly improved during the past 25 years, and it is calculated that it will be even more improved during the coming years and the demand for it will be enormous. When first introduced into Europe, the French, German, English, and others rejected it, but the Irish peasantry took it up and nursed it for a number of years. They found it to be an excellent article for eating, and as their soil was favorable to its production it soon came into general use all over Ireland. The attention bestowed upon its culture by the Irish was not unnoticed; hence it has to this day carried the name of the Irish potato.

Field Beans.

A farmer in Auglaize County, O., raises from 60 to 100 acres of beans every year and finds them a very profitable crop, though he frequently meets with heavy losses on account of wet weather at harvest time. His method of growing is not to cultivate at all. The bean-weevil is avoided entirely by late planting. Under no conditions are beans planted before June 15, and sometimes the planting is deferred until the last of that month. The earliest maturing plants are reserved for seed, and in this way straw has been secured which will mature in from 10 to 11 weeks from planting. The land is plowed as early as possible in April or May, and worked frequently until time to plant, the object being to get rid of the weeds and get as fine tilth as possible. The beans are sown with the ordinary wheat drill, using four drills and stopping up the fifth one, so as to make the beans in beds with a narrow path between them. It has been suggested stopping up every other drill, so as to make the space between the rows 16 inches instead of eight. It is also suggested to try Breed's weeder to get rid of the weeds that will spring up. It is best to sow as soon after a rain, as the ground will work to advantage; since to sow just before a heavy rain endangers rotting of the beans, or the formation of a heavy crust through which it will be difficult for the sprouts to force their way. To avoid heating in the mow, which will discolor the beans, they are unloaded on one-half of the mow, and after they have lain 48 hours they are carefully forked over. Shifting and airing them will dispel any dampness, and avoid danger of heating. If any portion of the crop should be caught in the rain it should be stored and thrashed separately, as a single load of damp vines may cause a great deal of work. When possible they should be cut with a mowing machine, which will greatly cheapen the cost of harvesting them.

The best and cheapest way to thrash is to tramp with horses, and if this can be done in clear, cold weather the job will be much facilitated, as they will then fall out of the pods at a touch and the work done in a few minutes. The thrashing floor should be well-covered, as bare or thin spots will cause many of the beans to be split by the horses' hoofs, which will injure their appearance and sale.

The Hop-Growers.

The hop-growers of Albany and Schoharie Counties, N. Y., have organized a society to promote their interests, with the following officers: Pres., Wallace Engle, Berne; V.-P., George W. Zeh, Middleburg; Sec., John H. Houck, Central Bridge: Treas., Peter S. Bouck, Schoharie.

THE ORCHARD.

Cullings.

Both grapes and pears are benefited by having old bones buried near them.

In orchard planting, select with a view to good bearing, good quality and good keeping.

In making up the list of apples, do not neglect a good supply of sweet varieties for home use.

Where orchard trees are injured by careless driving when plowing, a mixture of equal parts of clay and cow dung should be immediately put over the wounds.

Cutting out is the surest remedy for the peach borer; move the soil two or three inches around the stem of the tree and destroy, and then replace the soil.

A very hardy, Russian apple, called the Longfield, is gaining favor in Maine. It is medium in size, sub-acid, and rich yellow.

Missouri is looming up as an apple-producer. Mercer County claims to be "in the center of the richest apple country in the world."

Minnesota farmers speak highly of the Malinda apple. They say it is as hardy as the Duchess, more uniform as to bearing, and if taken care of will keep till June or July.

The birds are the fruit-grower's best friends and should be zealously protected by him. The more birds there are in his orchard the less trouble he will have with insect pests.

Sodded ground is preventive of best results in fruit-growing. Neither the best fruit nor healthy trees is possible in sod, and insect pests find that a pleasant home.

It is not easy to have too many Maiden's Blush apples in an orchard. It is admirable for Summer and early Fall, handsome in appearance, fine flavored, pretty sure to bear every year, and cannot be excelled for drying.

I have found no kind of labels for orchard trees so good as a strip of zinc three inches in length and one-half an inch in width at one end, cut to a point at the other. After writing upon it with a common leadpencil, the pointed end should be clasped about a small limb on the tree.

Frastus Lermond, of Thomaston, Me., claims that an apple tree can be made to grow successfully on clay land, if it is set on the surface of the clay, and the roots covered by mounding up. Water is the great enemy of apple trees. In a clay soil it stands around the roots as if it was in a bucket, but if the tree is set on the top of the ground it will drain away.

Wood ashes make the best fertilizer for all kinds of fruit trees and shrubs. The ash contains all the mineral part of the wood, and as not much nitrogen is required the ashes alone are sufficient. Where they cannot be procured unleached, a good substitute may be made of lime, potash, salts, and superphosphate, and a few pounds scattered every Fall, when the fertilizer is most needed, as far around the trees as the branches extend, will supply all that is needed.

The plum tree contains in its wood 60 per cent. of lime and 16 of potash, the apple has 12 per cent. of potash and 73 of lime. The fruits also contain a large quantity of these mineral matters. The ash of the plum has 60 per cent. of potash in it and 15 of phosphoric acid; that of the cherry has 52 per cent. of potash and 16 of phosporic acid; the pear 55 of potash and 15 of phosphoric acid, while the apple has 35 of potash, 26 of soda, and 14 of phosphoric acid. The dry matter of all the small fruits has 60 per cent. of mineral matters closely related to those of the larger fruits in it. And yet how many fruit-growers ever take account of this necessity for their growth?

Fruit-growers should remember that there are three kinds of insecticides, as different in their uses as the medicines which doctors put into human stomachs to cure disease. The first is the kerosene emulsion type, which kills plant lice and bugs which live by sucking the juices. Kerosene or other oil kills them by stopping up the pores through which they breathe. The second is the Paris green, London purple, etc., variety, which poisons the beetles and other bugs which eat leaves and stems. The emulsions have no effect on them. The third are the copper solutions, which destroy the fungi that attack foliage and fruit. The copper mixtures are unhealthy for beetles, etc., but not so deadly as the poisons.

APPLE SCAB REMEDY.

Home Manufacture of Copper Carbonate.

John Craig, Horticulturist of the Experiment Station of Canada, sends THE AMERICAN FARMER this method: As the precipitated form of carbonate of copper is not always found at the druggists, directions are herewith appended for the easy preparation of this material at a cost much less than the usual wholesale price. In a vessel capable of holding two or three gallons, dissolve one and a half pounds of copper sulphate (blue vitriol) in two quarts of hot water. This will be entirely dissolved in 15 or 20 minutes, using the crystalline form. In another vessel dissolve one and three-quarter pounds of sal soda (washing soda) also in two quarts of hot water. When completely dissolved pour the second solution into the first, stirring briskly. When effervescence has ceased fill the vessel with water and stir thoroughly; then allow it to stand five or six hours, when the carbonate will have settled to the bottom. Pour off the clear liquid without disturbing the precipitate, fill with water again and stir up with sediment; then allow it to stand until the sediment has settled again, which will be in a few hours. Pour the clear liquid off carefully as before, and the residue is carbonate of copper. Using the above quantities of copper sulphate and sal soda, there will be formed 12 ounces of copper carbonate. Instead of drying this, add four quarts of strong ammonia, stirring it well, then add sufficient water to make six quarts. This can be kept in an ordinary two-gallon stone jar, which should be closely covered. Each quart will contain two ounces of the carbonate of copper, which, when added to 25 gallons of water, will furnish a solution for spraying of the same strength and character as that obtained by the use of the dried carbonate, and one which can be prepared with little labor, and kept ready for use throughout the season. When the carbonate is to be used in suspension, instead of adding the ammonia to the sediment, add water until the whole quantity is made up to six quarts. Stir this thoroughly until the sediment is completely suspended (entirely mixed throughout) and pour the thick liquid into a suitable jar, when it will be ready for use. Before using, shake the contents thoroughly, so that all the sediment may be evenly distributed in the water. Pour out a quart of the thick fluid and mix with 25 gallons of water, stirring it thoroughly while using.

FRUIT PROSPECTS.

Peaches, Apples, Pears, Etc., on the Eastern Shore and in Delaware.

EDITOR AMERICAN FARMER: On the great Peninsula of the Eastern Shore of Maryland and Delaware, although statement after statement from prominent and extensive growers have appeared in the columns of the country newspapers, some asserting, others contradicting—according to the constitutional tendency of each writer's disposition toward hopefulness or despondency—the promising outlook of the peach crop, it is a fair and moderate statement that whilst the acreage of bearing orchards is greater than ever before in the history of peach growing in that section, there is the best of common-sense evidence that the crop cannot be excessively large, even if all harm from late frosts is escaped.

The standard larger and finer varieties are all yellow fruit, which, as a rule, are more susceptible to injury by low temperature than are the white-fleshed kinds. Because of this fact, what peaches are now unharmed in bud are largely of such kinds as Troth, Mountain Rose, Old Mixon, Stump, etc. Of course there are some yellow varieties that are hardier than others; such sorts as Garey's Hold On, Beer's Smock, Orange Smock, etc., having a larger per cent. of buds still sound than those of the large, or Melocoton, type, like the Crawfords (Early and Late), Reeve's Favorite, Mary's Choice, Chairs' Choice, etc.

The opinion of Mr. J. W. Kerr, the well-known nurseryman of Denton, Md., and one of the most intelligent, yet conservative, observers in that section of the country, with more than usually favorable opportunities of information, is that there is absolutely no chance or hope for more than one-fourth of a crop of peaches on the Peninsula.

As to apples: Last year was pre-eminently the apple year; trees bore heavily, and produced the fairest and finest fruit grown in the past 25 years. Now, as is well understood, the apple is different from the peach in that there is no probability of the same orchard or trees producing heavy crops two years in succession. Whilst no harm, from cold or otherwise, has yet occurred to this fruit, it is safe to say that the crop, generally speaking, will not compare with that of 1891.

Pears are still safe and prospects are fair for a good crop. The disposition toward full bearing only in alternate years is not so marked with these as with the apple, and much depends upon the carefulness and liberality of cultivation and manuring. Plums, too, are unharmed, and as a rule they are surer to produce crops than are peaches, and a crop can be considered as reasonably certain.

The small-fruits, such as strawberries, raspberries, blackberries, etc., seldom fail, and the plants of these have come through the Winter, generally speaking, in fair condition. Of these crops the yield in amount and quality is so entirely governed by the thoroughness of tillage and the generous application of fertilizers that it is safe to predict that those growers who really understand their business will harvest good and remunerative crops.

In the fruit-producing districts of southern Maryland and eastern Virginia parallel conditions prevail as on the Peninsula, and as a rule the outlook is about the same. In truth, however, the critical point has not really been reached. Severe cold, except under certain conditions, is not so likely to destroy the fruit-buds, especially of the peach, as the late frosts, which toward the end of this month, or in May, have so often struck down the glowing prospects of fair harvests and turned bright anticipations of growers into despair.

In the comparatively newer peach region of western Maryland much the same situation exists. Apples were never so abundant as last year, and peaches were profuse and good. The latter crop is more retarded in development and bloom by the lower temperature of the mountain regions, and that far is safer than the more Southern crops from abnormally late frosts. These, however, is arising, as is always certain to arise when the interest becomes an important one, the difficulty of adequate, quick, and reasonably cheap transportation to market; but the active men in the business are taking steps to extend their markets and secure reasonable rates.—W. B. S., Baltimore, Md.

Tent Caterpillars.

Prof. J. H. Comstock says: "There are many species of caterpillars that feed upon the foliage of the apple, pear, and quince. The more conspicuous of these are the tent caterpillars, which are so called because they live in colonies in large silken tents. These may be readily destroyed by removing the tents with the tent caterpillars. As this tent serves merely as a residence, the caterpillar leaving them and spreading over the trees to get their food, care should be taken to remove the nest early in the morning or on a rainy day, at which time the insects are in the nests."

To Laze.

This is an old verb. In Samuel Rowlands's "Martin Markall," 1610, page 17 (Hunterian Club's reprint), we are told that "Loyterers laze in the streete, lurke in alehouses, and range in the highwaies." The word occurs, I believe, in some of Mortimer Collins's lyrics:

But Cupid *lazeth* 'mongst the faiery lasses,
Whose clere complexion he oft sweareth passes
—"The New Metamorphosis," 1600, MS.
Pur on the glasse and on hearb pillowes *laze*
Whiting's "Albino and Bellama," 1638.
—*Notes and Queries.*

Spread out the roots nearly equal on all sides, so as to brace the tree well.

Stable Talk.

It takes five years from foaling to make a perfected horse.

It will pay well to have every horse's collar and harness specially fitted to him.

An excellent ointment for skin diseases of the horse is made of five grains of carbolic acid to one ounce of lard.

There are few deaf horses, and when a case of this kind occurs it is almost always due to a blow from some brutal driver.

The market for really good horses is constantly improving, while that for tolerable ones is as constantly getting poorer.

It is estimated that the market gardeners who cater to Boston lose $10,000 worth of horses a year by poor care and injudicious feeding.

Forbarion is the name which a Western gentleman suggests for Mr. Forbes's wonderful young stallion, Arion (2.10¾), which cannot be registered as Arion, because that name already appears in the Register.

It is said that a half a gill of cheap molasses given in the feed twice a day from March 1 for about six weeks will loosen the tightest hides on hide-bound horses, and improve their condition generally.

A good supply of carrots is a most profitable investment for stable provisions for the Winter. They help regulate the bowels and make the coat shiny. Two or three a day are all that it is necessary to feed.

Nothing pays better in dollars and cents than kindness and care in the treatment of horses. A well-groomed, well-stabled horse needs sufficiently less food, and does more work to abundantly repay all that this costs.

Egbert has more 2:30 performers to his credit now than any other living son of Rysdyk's Hambletonian. He is credited with 44 with records from 2:12½ to 2:30. Strathmore is sire of 41 from 2:30 2:13¾, and Harold has 38 from 2:30 to 2:08¾.

The value of the liquid manure of a horse is estimated at from $8 to $12 a year. Any good absorbent that will save this is a valuable addition to the stable. Plaster is recommended for this purpose, and a cask, costing $1.50, it is said will be enough for six horses all Winter.

First-class trainers of trotters command nearly as much salary as professional baseball players. It is rumored that Marvin will have $10,000 a year for handling the Prospect Hill Farm trotters, and Mr. Hamilton is to pay E. F. Geers $5,000 a year for five years.—*American Horsebreeder.*

A good ration for a horse weighing 1,000 pounds is 10 pounds of coarsely-ground corn and 15 pounds of good, timothy hay. This quantity is enough for a horse of 1,200 pounds weight, if kept in a warm stable, without work, or more exercise than is necessary to preserve his health.

The trotting mare Mae S., by Nutwood, out of Alicia by George Wilkes, that Miller and Sibley bought for $7,000, will be bred to Electric Bell this year, thus uniting the blood of five of the greatest broodmares—Green Mountain Maid, Beautiful Bells, Minnehaha, Miss Russell, and Alma Mater.

Quite a number of covered tracks are going up over the country. One which will be built at Meadville, Pa., before next Winter, by Miller & Sibley, will have a perfect track, three-eighths of a mile in length, and enclosed by a building 48 feet wide. It will require 500,000 feet of lumber for its construction.

Justin Morgan, founder of the Morgan family, died in the Winter of 1821, on the farm of Clifford Bean, about three miles south of the village of Chelsea, Vt. His death, like that of Abdallah, sire of Rysdyk's Hambletonian, was caused, mainly, by neglect and exposure.—*American Horsebreeder.*

When with young, brood mares should not be pampered too much any more than they should be worked too much or otherwise ill-used. A mare in foal is better to be worked at light work if a working horse, or given daily travel over the roads if she is a trotter. Both kinds of exercise should be steadily reduced as she approaches foaling time.

The horse has a small stomach, but it is an active one. His food should, therefore, be of the highest nutritive value, and yet easily digestible. Corn is an excellent food under most circumstances, but it is best fed when coarsely ground, and given with cut hay. If fed as meal, it is liable to become a pasty mass, which is not readily attacked by the gastric juice, and will therefore occasion indigestion and colic.

Stallions should be treated with the greatest kindness, yet at the same time with firmness. Never pet nor tease them, as they will only resent punishment the more when it becomes necessary. Always speak quietly, and don't make a habit of speaking sharply and angrily, as it will sour any horse's temper. All horses are sensitive, but a highly-bred stallion is wonderfully so. Very little punishment should be necessary with a well-managed, well-exercised stallion. It should be used absolutely as a last resource.

There is a fear expressed by some horsemen that unless there is a change in the practices of breeders the production of good, draft horses will be transferred to the Western ranches. The trouble is that in the East the stallions are not trained to work of any kind. They live lives of idleness, and consequently all the working qualities must be got from one side of the house. In the ranches the stallions, if they are not actually worked, have a wide range over which they can gallop at will, and so develop their legs and feet.

The Shire Horse Association protests vigorously against the new Treasury regulation that "after April 1, 1892, no imported animal shall be admitted free of duty, unless accompanied by a certificate showing that all the ancestors have been recorded in the book of record established for its breed for five generations on the side of the sire and four on the side of the dam." They say that this will exclude all but very few animals of recognized worth and breeding, because of the comparatively recent establishment of public registration of pedigree, and they say that it is a matter of common knowledge that the Shire horse which will be excluded has been bred practically pure for over a century, and that he is one of the purest-bred draft horses in existence.

Monarchs of the Turf.

It is generally admitted that Goldsmith Maid was the greatest trotting campaigner that ever lived. Judged by the actual number of races won against other horses, however, Flora Temple takes the prize, as 96 stand to her credit, against 95 for Goldsmith Maid. The latter, however, won 332 heats in 2:30 or better, a much greater number than stands to the credit of any other trotter. The bay gelding Rarus (2:13¼) comes next, with 185 heats to his credit. Harry Wilkes (2:13½), by George Wilkes, is only 16 behind Rarus, the number won by him in 2:30 or better being 169. Old Driver (2:19½), now owned by George W. Leavitt and kept at Pembroke, Me., has won 167 heats in 2:30 or better, only two less than Harry Wilkes.—*American Horsebreeder.*

The Herefords.

The Hereford breed of cattle originated in Herefordshire, England, a County near the border of Wales, and first attracted attention about the middle of the last century. They were first introduced into this country, shortly after the close of the war of 1812, by Henry Clay, but he did not do anything with them, and soon replaced them with short horns. Sir Isaac Coffin, who was born in Massachusetts, sent a few to his native State, where they met with favor, and later they came to be valued by Western breeders on account of their ability to do well, despite irregular supplies of food, and their beef-making capacity. They have not been regarded highly as milk-producers, though the quality of their milk is good. The oxen were good draft animals. They are usually red in color, with bellies, throats, and faces white, countenances pleasant, heads small, horns taper and spreading, barrel even, round, and roomy, plenty of meat on frame, and legs short. The Queen of England lately exhibited an ox 695 days old, which weighed 1,358 pounds (average gain of 1.95 pounds a day). His dressed carcass weighed 889 pounds, or 64.80 per cent. of live weight.

Another ox of the same breed, exhibited at the same time, was 660 days old, weighed 1,414 pounds, an average daily gain of 2.14 pounds, and his carcass weighed 937 pounds, or 66.27 per cent. of live weight.

THE LOST SHEEP.

A Story of Colonial Days.

The following pretty story, by Miss Alice Maude Ewell, a unique magazine story writer, a most charming country girl out in Virginia, will give pleasure to THE AMERICAN FARMER readers of esthetic taste. Having the assurance of its being a true story of more than 100 years ago, gives it a historic charm:

"Once upon a time (to begin in the good, old, ever-new way), somewhere about the middle of the 18th Century a certain little girl, whose father lived as tenant on a certain great estate in the 'Province of Maryland,' was given by the shepherd a weakly lamb to raise for her very own. Under the child's loving care it throve and grew, and in due time brought forth young ones, till she became the proud owner of a thriving, little flock which added vastly to the family comfort and happiness. However, trouble was in store. One Spring night the sheep mysteriously disappeared from a field where they had been left grazing at sundown, and the closest, most eager search for them, far and near, proved all in vain. A certain neighboring landholder who had long been at enmity with the Lord of the Manor where this happened, and who never lost a chance to annoy the dwellers thereupon, was questioned, but denied all knowledge of these sheep, and nobody thought that even he would be guilty of so small a villainy as their abduction. They were sorrowfully given up for lost, when more than six months later the little girl, while walking across one of this bad neighbor's fields, heard a bleating sound behind her, and looking around saw several sheep detach themselves from a large flock and come running toward her. We can imagine her joy to recognize at once her long-lost pets, each one answering gladly to the name that she herself had given it, and all showing every sign of joy at sight of their gentle mistress.

"The sheep had never been marked by their rightful owner, and the sheep-thief triumphantly showed his own mark upon them; but there was another mark in their hearts more to the purpose. The proverbial silliness of sheep was on this occasion certainly changed to wisdom. The matter was decided by arbitration, of course in favor of our little shepherdess, whose flock from that time went on increasing in peace and safety."

When a woman rises to terminate a visit, she has more to say than during her whole stay. In this regard a woman is like a gun, which makes the most noise when it goes off.

A good, well grown heifer may come in at two years old.

Cacklings.

The general rule is to allow one turkey cock to eight or 10 hens.

The Maine Experiment Station has found that cracked corn and beef scraps increased the weight of fowls at a cost of 3¾ cents per pound, while with cracked corn alone the cost was 8.6 cents per pound.

The less disturbance a sitting hen has the better. If no chicks appear by the 21st day, the eggs should be carefully examined; those that are soiled washed in tepid water, and those which show signs of life replaced under the hen. Eggs sometime hatch as late as the 24th day.

Those who have had experience regard Pekin ducks as one of the most profitable varieties. They are hardy, prolific, furnish white feathers, and are large in size. A yearling duck will lay an average of 80 eggs a year, and older ones an average of 120. Their faults are great cowardice and a harsh voice. The sexes should be in proportion of one drake to 10 ducks.

A brooder is the greatest help to the poulterer. The greatest losses to him are at the time when the newly-hatched chicks leave the shell, and are crushed in the nest by the carelessness of the mother hen. This can be avoided by taking them away and putting them in a brooder, which is merely a box kept warm by a tank of hot water, and large enough for the chicks to move around in and be fed for a few days.

The Cayuga is an American breed of duck which is finding increasing favor among poulterers. They are not inclined to wander far away from home, are more precocious birds than the Roens, are better layers, their eggs are more fertile, the young are hardier, and their flesh is of better flavor than that of the wild duck even. The main objection to them is their smallness, a pair dressing only seven or nine pounds. In shape and size they resemble the Aylesburys.

Hen turkeys are very shy about their nests, and they should be carefully watched at this season, and their eggs gathered in every day before the chills of night come on. The eggs should be kept in the house, carefully turned every day. When the hen becomes broody she should be given 13 to 18 eggs, and a nest made for her on the ground, where she will be secure from interruption of the other hens. She should be fed corn and water—she will want nothing else. Especially no green food should be given her. If, after feeding, she does not return to the nest of her own accord, she should be caught and placed on. When the hatching occurs the mother and young turks should be placed in a roomy coop and carefully watched to keep them from lying on their backs and dying, or lurking in the corners and starving. They should be fed curds and scalded meal mixed, and the coop moved to fresh ground every day. Everything about the coop should be kept scrupulously clean, and when the little fellows are turned out the best place for them is a nice lawn.

CHICKENS.

Common Sense Mainly Required in Caring for Them.

EDITOR AMERICAN FARMER: I was somewhat surprised to learn that about $2,000,000 worth of eggs were imported annually into the United States, showing that the American hen is still an object of importance, notwithstanding all that has been said on the subject, foolish and otherwise.

The treatment and care of poultry is a hackneyed subject, and yet a few simple rules are all that are necessary to develop the best treatment of fowls and to secure success.

They must have access to the earth and to a certain amount of vegetable and animal matter. Hence, if they are confined and prevented from a natural self-supply by their own exertions, their owners must supply this deficiency. This can be done by turning up the ground in their run so that they can find worms and insects. By an occasional dose of good beef, potato, and onion hash, and by cutting clover hay and mixing with ground or chop corn in the morning feed, a *variety of food*, guided in the selection by the eagerness of the chickens to devour it, and by the ordinary common-sense view of what is the right thing to do, is the main point to be looked after.

I was living a few years ago in the vicinity of New York City; had a small flock of hens kept for my own amusement. I had a variety of breeds, and when one of the severest Winters came on, with deep and lasting snows, it was a matter of some concern how I should keep my flock in order and get them through safely; yet with a bushel or two of lime and sand mortar, and a variety of soft and dry food as their taste demanded, we sold about $30 worth of eggs that Winter from our little flock of 15 hens. When eggs are 50 cents per dozen it pays to be a little "hen struck." There was an old gentleman in our building in the city, who rented a place at Englewood, furnished complete, including the live stock. Calling me to his desk one day he recited his troubles and read to me a letter he was about sending to the owner of the property. The letter included the following epigram:

'Tis fair that fowls on fare should feed,
'Tis foul that fowls their fare should need.
'Tis foul that fowls should always play,
And he doth lie who says they lay.

—BUCKEYE, Mansfield, O.

The Demand for Eggs.

The farmer seems ever ready to grow any crop that is in demand, but it is wonderful that he has not discovered the demand which seems to be constantly for eggs. Last year we imported over 16,000,000 dozen eggs, many of these coming from Canada, while the rest was shipped from Holland, Belgium, France, and Norway. Just think of it! What an enormous number of eggs imported! Sixteen million dozen, or 192,000,000 eggs. A good hen lays on an average of 120 eggs a year, which is rather a low estimate. At that rate it would take 1,600,000 more hens to lay enough eggs to supply the amount imported. And yet farmers do not begin to realize this. If they only paid as much attention to poultry as they pay to their crops they would soon see the value and profit in poultry.

And yet farmers say there is no profit in poultry raising. The only reason they have for judging so is on account of the numerous failures among people, who imagine that there is large money in poultry raising with very little work, and as their expectations are not realised they are unable to care for the management of a poultry farm.

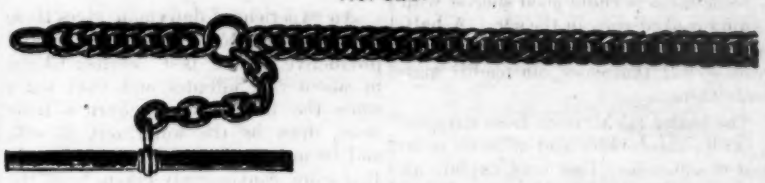
The case of only one man need be cited to show that there is profit in poultry, which are well taken care of. The man in question rented a small place for three years. His buildings cost him $1,400, he paid nearly $600 rent in the three years, supported his family, paid for hire of help, feed, fuel, taxes, hauling, and at the end of the three years he paid himself back all this expenditure, and had $1,200 clear of everything. Yet this man did not know anything about poultry when he began. He had never seen an incubator or brooder; and he had to lose a portion of his time in order to learn. The incubators were of the simple kind—the ordinary hot-water—and yet he had only one-eighth of an acre devoted to the business. His success was due to his energy. He made it his point to be constantly among his chickens. This was the secret of his success.

New York State Poultry Society.

The annual meeting of this society will be held at Rochester April 6. Geo. E. Peer, Rochester, is President, and F. E. Dawley, Syracuse, Secretary. A Breeder's Exposition will be held Jan. 23–27, 1893. The entry fee will be $1 and the premiums $4 for first, $3 for second, and $1 for third.

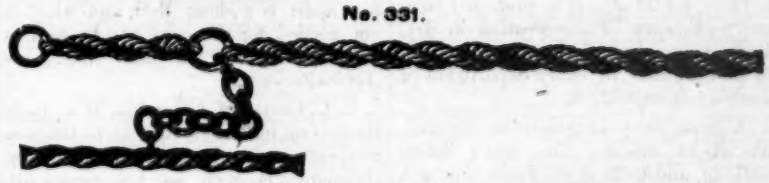
HEAVY GOLD-PLATED CHAINS.

No. 329.



No. 330.

No. 331.



No. 332.

The above chains are made of solid-rolled gold plate. They are guaranteed to wear ten years, and the designs are the latest and best in the market. The cuts exactly represent the style of the links, showing the handsome bar, swivel and extra links to which charms may be attached.

No. 329 is a heavy trace chain. Sent for a club of 5 subscribers at $1 each and $1.25 added money. Sent free as a Premium for a club of 10 subscribers at $1 each. For sale for..... $3 15

No. 330 is a curb chain. Sent for a club of 4 subscribers at $1 each and $1.25 added money. Sent free for a club of 9 subscribers at $1 each. For sale for..... $2 75

No. 331 is a new style chain. Sent for a club of 4 subscribers at $1 each and $1.10 added money. Sent free for a club of 8 subscribers at $1 each. For sale for..... $2 50

No. 332 is a heavy rope chain. Sent on same terms as No. 329.

The safe delivery of all these chains is guaranteed. Address

THE AMERICAN FARMER CO., Washington, D. C.

Skimmings.

"A cow to the acre" is the best rule.

New York has $350,000,000 invested in dairying, of which $84,000,000 is in cows.

It is sinful waste to allow good milk stand in a filthy stable and absorb its foul odors.

An expert butter-taster can tell at once whether the water furnished cows is good or bad.

Aerated milk is purer, sweeter, and keeps longer than that which has not been so treated.

Pumpkins are admirable for feeding in September and October, and carrots for the Winter months.

Raising 15-cent butter is taking a near road to the poorhouse. Raising less and of better quality secure prosperity.

The Babcock milk tester has done more to make dairymen honest than the Bible.—*Mr. Harris, Goshen, Ind.*

If the cow could talk I doubt not she would be heard all over the land calling for an improved breed of dairymen.—*Prof. Gilbert.*

Winter feed has a tendency to make harder butter fat than other the feed of the warmer seasons, so that this should be churned at a higher temperature.

No butter is really "dry." No matter how it is made it must almost necessarily contain from 12 to 15 per cent. of brine, and will average the latter figure.

There are 30,000 dairymen engaged in supplying the city of New York with milk, and their customers pay them $1,000,000 a month.

Some farmers claim good success with feeding cooked corn in the ear. A half-hour's boiling will make both cob and grain so soft that cows can readily masticate them.

The butter fat in cream from strippers is harder than others and requires more heat to soften it. This may explain an annoyance from which churners suffer at times.

Cows need sunshine and open-air exercise as much as human beings. They cannot thrive any more when constantly tied up in a dark stable than a prisoner can who is chained to a wall.

Cows should always be protected from the inclemency of the weather in dry, warm stables, kept rigorously clean. In fact, cleanliness in every department of dairying is imperative.

A great many dairymen are scrupulous about washing the udder before milking, and there is no doubt that as a rule this is worth while doing.

Ripening the cream brings out a certain development of lactic acid, and in my opinion has a great deal to do with bringing out that fine butyric flavor we look for.—*Gov. Hoard.*

A plentiful supply of clean straw for the stables will be a profitable provision in every way. It will reduce greatly the labor of keeping the cows clean, while its absorption of manure will pay a big return on the investment.

The first test as to whether cows are having proper rations is whether they keep and gain in flesh. If they lose flesh there is something wrong with their feed, no matter how scientifically it is compounded.

A liberal amount of corn should be raised for fodder, and the best way to do this is to mark out the ground with a shovel plow, drop the seed in the furrows rather thickly by hand, and cover it with a cultivator, going crosswise.

The successful dairyman of the future will be a specialist, either a butter-maker, a cheese factory patron, or a city milk seller. The cow does not exist that can be profitably used for all three of these demands.—*John Gould.*

A cellar is no place at all to set milk unless it is used solely for that purpose, and kept perfectly clean and sweet. If used as a storehouse for meats, vegetables, sourcrout, etc., or if damp and musty, few places could be worse.

Mangel Wenzel beets are an excellent feed for milch cows and hogs. The seed can be bought for about 35 cents a pound, and a pound will plant one-sixth of an acre. As high as 75 and 80 tons are raised to the acre in England.

Nearly every cow can be made profitable if well kept. Still some cows are much better than others, and the truest economy is to get rid of the poorest cows and replace them with better. It is wasteful to keep two cows to do the work of one.

An experienced dairyman gives these directions as economical of labor and productive of the best results: Churn in about 45 minutes, add cold water when the butter comes, churn a trifle more, draw off the water, mix in salt, and 10 minutes later take out and pack. It is more conveniently taken from the churn if first pounded a little.

I have tried a number of crops, sweet corn, millet, and sorghum, and have used clover, but after the pastures begins to fail sweet corn that has well-formed ears, not ripened, makes the best feed, and if sown reasonably thick in drill rows three feet apart is a cheap feed, and what is not needed for the cows can be used as an early ration for the pigs.—*Wisconsin Agriculturist.*

F. C. Curtis, of Columbia, Wis., finds there is no inflexible rule as to the best temperature for churning cream. Cheap thermometers, such as are commonly used in the dairy, vary considerably. Because someone finds 62 degrees or 64 degrees, as indicated by his thermometer, the best, it does not follow that the same temperature, as indicated on yours, is best for you.—*Practical Farmer.*

There is still room for discussion as to whether milk from fresh cows should be mixed with that from others not so fresh. J. D. Smith found by actual test that the butter from the cream of fresh cows came in 15 minutes, while that from strippers came in 9. On the other hand, experiments at the Wisconsin Station seemed to show the advisability of mixing the two kinds of milk.

The belief of many dairymen have that green rye will give an unpleasant flavor to milk is not well founded. It is possible to change so suddenly from a full ration of dry feed to one of green as to cause sickness in the animal which will disagreeably affect the milk, but if the change is made gradually no ill results will follow. The great thing in feeding is to use common sense and treat animals something like oneself.

In nearly all cases ground feed is preferable for feeding the milch cows than giving whole, as it will be better masticated and more thoroughly digested and assimilated; but in feeding ground feed of any kind it is always best to use in connection with more bulky foods in order to secure a better digestion. One of the principal advantages in using corn and cob meal in preference to corn meal alone is the bulky nature of the meal when corn and cob are ground together.

Old-fogy farmers may sneer at "book-farmin'," and "scientific rations" for producing milk and butter, but all the same the carefully-noted experience of 30 years has shown that the feeding of foods rich in fat-producing materials have had direct and unmistakable results in increasing the fat or the milk of the animals so fed. The fact is undeniable that if we expect to get rich milk from a cow, beef from a steer, or wool from a sheep, we must feed those animals the foods which science tells us abound in the materials from which those products are made.

Managing the Churn.

Prof. J. W. Robertson, Dairy Commissioner of Canada, says: Difficulty is often experienced, in the Winter especially, in churning cream. The addition of about 25 per cent. of water at 70 degrees to the cream when it is still sweet will cause it to yield its butter in less time and more completely. This should be done before the cream sours and at least 20 hours before churning. The next treatment is for the development of lactic acid. If a quantity of sweet cream be churned and also an equal quantity of sour cream of the same quality of composition there will be obtained from the sweet cream only 77 pounds of butter out of every 100 pounds, while there may be obtained from the sour cream 97 pounds out of a possible 100 pounds. Thousands of pounds of butter are lost annually throughout the country from churning two qualities of cream at one churning. The only safe plan is to have all the cream for each churning thoroughly mixed from 10 to 15 hours before the operation begins. Keep at 60 to 70 degrees, according to the season, to allow it to sour. The higher temperature is required in the Winter, and, for cream from separators, during the Summer also.

When the butter particles are half as large as clover seed 10 per cent. of water may be added to the churn. After they get to be half as large as wheat grains the churning may be stopped and the buttermilk removed and replaced by pure water at 55 degrees and washed. When the water runs off free from a milky appearance the granular butter should be left in the churn for half an hour to drain.

It may be salted in the churn or removed to the butter worker for that purpose. Pure salt of a fine velvety grain should be used. The amount used should be regulated to suit the taste and requirements of the customers; from three-fourths to an ounce per pound is the usual allowance.

The Babcock Milk Tester.

The machine is not a patent right and costs about $8; larger ones, with 20 to 50 bottles, more. The principle is to take an ounce of milk, which is the 1-1600 decimal of 100 pounds, put it in a bottle of a certain size and add one ounce of sulphuric acid. The acid eats out all but the fat contents of the milk. This bottle is whirled in a little machine for five minutes; the bottle is then filled up with hot water, and this liberates the fats, which are then measured in the graduated neck of the bottle. The readings corresponding with the measure of milk, and are 3, 4, 5, or 6 per cent. of 100 pounds, as the richness of the milk may render. Each 1 per cent. represents a pound of butter in 100 pounds of milk, and one readily sees by the per cent. whether the cow is a 3, 4, 5, or 6-pound butter cow to the 100 pounds of milk. It takes about 10 minutes to test four samples of milk. They are both simple and accurate. They are for sale by any supply house. They can be readily understood in 10 minutes, but practice makes the work easier and more accurate.

A Good Living from Three Acres.

A very successful experiment in small holdings has for some time been carried on at Wallasley, near Liverpool. The holdings vary in size from three acres to 15 or 20 acres. They are worked entirely by spade culture and produce early vegetables for the Liverpool and Birkenhead markets. Three crops are raised every year, and sometimes three kinds of vegetables may be seen growing on the same piece of land, the earliest being gathered as soon as it ripens. The laborers declare that it is perfectly possible for market gardeners to make a good living from three acres and "do no work themselves except go to market with the stuff." This is surely a result far transcending the cherished dreams of Mr. Chaplin or Mr Jesse Collings. The unfortunate part of the business is that all agriculturists are not market gardeners, and that very few villages have Liverpools and Birkenheads in their immediate vicinity.—*Pall Mall Gazette.*

The Hardy Orange.

EDITOR AMERICAN FARMER: Will someone please give me his or her experience with the Hardy Orange? Do house plants require the soil changed, how often, and at what time of the year?—LOUISA FUNSTON, Gove Co., Kan.

Salt has been found to be practically useless for killing cutworms.

SWINE.

Pen Notes.

Be on the lookout for the early farrowing sows.

No hog is quite so ravenous as a sow that is suckling pigs.

Milk and grass are the best feeds for young pigs.

At first give a sow bran and milk, and then add corn meal.

Any of the leading breeds of hogs are good if they are given proper treatment.

The only safe plan of being sure of saving all of the pigs is to be ready for them.

Good pasturage of any kind will help the brood sows materially to give a good flow of milk.

Allowing the brood sow to become constipated often causes the loss of a litter of pigs.

Until clover makes a good start to grow rye or wheat makes a good pasture for the hogs.

It is not a good plan to make a specialty of hogs unless the farm is well adapted to growing grain.

With hogs especially, young animals give a better return for the food consumed than those that are matured.

There is no advantage in putting rings in the hog's nose unless absolutely necessary to keep them from rooting.

When hogs are turned out on a grass or clover pasture care should be taken to see that they have plenty of salt.

At this season it is not a good plan to allow the pigs to bed in the straw piles, and especially if the straw is wet.

Scattering air-slaked lime liberally around the pig pens is a good means of maintaining good health, especially at this season.

On the majority of farms during the Spring, at least, there is more or less milk than can be fed to the hogs to an advantage.

Both Yorkshire and Suffolk pigs are white, but the Yorkshire is heavier, stouter, and has a very short snoot. Its hair is longer and coarser.

Sour feed is no better for pigs than for other animals, and many diseases can be traced to its use. Among these are black teeth and blind staggers.

One important item with pigs at all times and in all stages of growth is to keep comfortable; this is necessary if the best growth at the lowest cost is secured.

If a pig is farrowed in April it has nine months in which to grow before the end of the year; and if he is of a good breed and is well fed, can be made to weigh 250 pounds by this time.

Farmers think that any water is good enough for a hog, but in this they are mistaken. Many farmers have lost hogs on this account, and they will continue to lose them until they adopt better methods.

It is of as much importance that breeding sows and ewes should be good milkers as that the cows should. That is necessary if one would raise good pigs and lambs. The only way to obtain this is by selecting and retaining as breeders those that come from strains of milkers.

THE FARM.

Decaying organic matter in the soil adds to its warmth.

Selling hay may increase the income but not the profit.

A good road is a great saving of horse flesh for the teams that are to travel upon it.

There is no economy in having manure piles around the barn; haul direct from the stables to the fields.

It is an important item in the making of a good road to secure a good grade, and then secure a good width.

The best plan of manuring is to make every acre rich as you go rather than to scatter the manure over a larger acreage.

Take every advantage to plant or sow seed in the Spring whenever the condition of the soil will admit; this is necessary in order to get the seeding all done in good season.

The continual growing of any crop without returning to the soil the plant food they are taking from it will surely exhaust the available supply needed by that particular crop.

Have the tools and implements been overhauled; painted; the needed repairs made; the harness oiled, and sundry other rainy-day jobs done on these days when the weather and the soil are unpropitious?

A little time now spent in brightening up the plows and cultivators, cleaning up and oiling the working parts and repairing whenever needed, will save considerable time after the season for work begins.

But few crops equal alfalfa for cutting for green food for stock. Mechanics who have but an acre of ground will find that half an acre well set with alfalfa will afford more feed than can be derived from any other source.

Just sell half of that farm for cash or good security, and then make the other half yield as much as the whole did. You will enjoy being "out of the woods" of financial embarrassment, and the boys will like the farm better, too.

The selection of grasses depends upon circumstances, such as soil, drainage, habits of growth, etc. New grasses should be introduced, but cautiously. Pasturage should be adapted to the soil and the kind of stock kept. Cattle, horses, and sheep are different in their feeding habits. Cattle want grass long and luxuriant. Horses and sheep delight in short but sweet grass. Judicious management of stock upon pasture is essential. Do not turn on too early. Give the grass time to make a good start. Sheep are most destructive to turn on grass too soon, as they eat the heart out of it.

The wastes of farming are enormous. To avoid them would make all the difference between depressed agriculture and abundant prosperity. The greatest waste is probably in the dairy. The money lost in making grease-butter alone is equal to one-fifth of the whole product, and this is worth at least $250,000,000. Here is a clear saving to be made of $50,000,000 yearly in this one product by more skillful work.

Waldo F. Brown recommends to the tenders of the *Rural New Yorker* that they should simply pulverize the surface of land intended for oats instead of breaking it up with a plow. Its advantages are a better seed-bed, a heavier crop, and more land seeded in the same time. All that is needed is to get three inches of the surface fine and mellow, and this may be done with a Disk or Acme harrow, or, if you have neither of these, use either the double or single corn cultivator. If the land is level sow the oats first, but if uneven sow after cultivating. If cultivators are used to stir with use a good heavy harrow to cross harrow. In either case finish up with a plank drag.

SOWING OATS IN THE MUD.

A Chance to Re-Seed Winter-Killed Wheat Fields.

EDITOR AMERICAN FARMER: Where oats are sown late they ripen late, and are almost certain to be seriously affected by rust, which not only greatly injures the straw but reduces the quantity and affects the quality of the grain. It is for this reason that the following plan, which has proved to be a successful one in western New York, is recommended as being worthy of immediate trial in localities where the wheat crop is very liable to be Winter-killed. Where this happens it is desirable that some other crop be substituted, such as oats or corn.

The plan of sowing oats in the "mud" is quite frequent on wet land that cannot be worked early in the Spring, and for the purpose of early seeding. Where black, mucky soil is common, Fall plowing is frequently omitted, and whenever the surface becomes thawed to the depth of two inches, the oats may be sown broadcast, and harrowed in. This can be done in many localities as early as March 15, and if the season is late, a later date will answer, provided the soil be again frozen to the depth of an inch or more, as this will remedy any damage that may have accrued from stirring the wet soil. The seed will then sprout early in April; whereas, if the seeding is deferred until the soil becomes in a proper condition for working, it would frequently be as late as May before the oats could be sown.

I am informed that this practice is common in the Spring wheat-growing districts of Minnesota and Dakota. At all events, the seeding should be done sufficiently early so that the subsequent freezing and thawing will render the surface soil loose and friable. I recommend the trial of this plan on a small scale at first, with the hope that the result will be published during the coming Winter, so that your readers may have advantage of the experience of others. It is probable that land from which a corn crop had been removed would answer for seeding with oats. Seeding with clover or timothy or other grass seed could follow later in the Spring. If the soil is sufficiently dry after sowing the grass seed, the land should be rolled.—W. M. K.

One reason you can't bleed a turnip is because a turnip wasn't intended to be beet.

FARMERS' ALARM CLOCK.

It Will Call the Boys to Make the Fires at any Hour Set.

This Clock is made specially for us by the largest manufacturers in the world.

It is warranted to be an accurate timekeeper, and is well made and perfectly finished in every particular.

It is in polished nickel case. The alarm bell sounds loud enough to arouse every sleeper in the house at the hour it has been set.

The clock runs 30 hours after winding.

The dial is four inches in diameter.

We give this Clock free as a premium for a club of 4 subscribers, with only 10 cents in money to help pay packing and transportation.

For sale at $1.40, with 10 cents additional if you want it registered.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

A CHILD'S SILVER TABLE SET.

No. 801.

This is something fresh from the factory, manufactured specially for our trade. The cut is very much reduced in size, and does not do the articles justice. It is not a toy set, but for a child's use at the table. It is the proper size for a child from the time it is able to sit at the table until it is about 12 years old. There is a knife, fork, spoon, cup, and napkin-ring.

They are manufacted of American Sterling, covered with a triple plate of pure silver. These articles are as good for practical purposes as though made of pure silver clear through. They will never wear brassy, but will always retain the bright white color of silver, all the metal in them being of the same tint. The articles are neatly packed in a beautiful silk-lined plush box. We offer these five pieces, boxed and postpaid, at a price less than that charged for the box alone by the leading silversmiths of New York City.

For sale with THE AMERICAN FARMER for one year for..... $1 60

This will be sent free to any address, postpaid, for a club of four yearly subscribers at $1 each. Here is a chance for our young folks to secure a present for the little brother or sister absolutely free of cost.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

THE MARKETS.

NEW YORK, Tuesday, March 29, 1892.

BUTTER.—Although the demand for butter is not active, the market has remained firm and prices have advanced on fancy State f ctory and creamery. Fancy imitation creamery is also firmer. Old butter is quiet. We quote:

State dairy, half-firkin tubs, new, fancy, per pound	23½a27
State dairy, half-firkin tubs, new, choice, per pound	25 a26
State factory, half-firkin tubs, old, good, per pound	.. a21
State factory, half-firkin tubs, fair, per pound	19 a20
Eastern dairies entire, choice, per pound	20 a21
Eastern dairies entire, fair to good, per pound	18 a19
Pennsylvania creamery, fancy, per pound	.. a29½
Western creamery, new, fancy, per pound	26 a28½
Western creamery, new, good to choice, per pound	27 a28
Western creamery, old, choice, per pound	20 a21
Western dairy, new, choice, per pound	21 a22
Western dairy, new, good, per pound	18 a20
Imitation creamery, fancy, per pound	22 a24
Imitation creamery, good to choice, per pound	20 a22
Imitation creamery, fair to good, per pound	17 a19
Factory fresh, choice, per pound	22 a23
Factory fresh, medium to good, per pound	19 a21
June packed, per pound	16 a17
Rolls, fresh, choice, per pound	21 ..
Rolls, fresh, medium to good, per pound	17 a20

BEANS AND PEAS.—Marrows and medium are steady. White beans are quiet. Green peas are firmly held. We quote:

Beans, marrow, choice, per barrel	$2 00a$2 05
Beans, marrow, poor to fair, per barrel	1 80 a 1 90
Beans, medium, choice, per barrel	1 75 a ..
Beans, pea, choice, per barrel	a 1 70
Beans, red kidney, choice, per barrel	1 90 a 2 00
Beans, red kidney, poor to fair, per barrel	1 80 a 1 75
Beans, white, kidney, choice, per barrel	2 10 a 2 20
Beans, black, turtle soup, per barrel	3 00 a 3 15
Lima Beans, California, per 60 pounds	1 70 a 1 75
Green Peas, berries, per bushel	1 35 a 1 37½
Green Peas, bags, per bushel	1 32½a 1 35
Green Peas, Scotch, per bushel	1 40 a 1 45

CHEESE.—The receipts of cheese for the past six days were 9,218 boxes. The market for cheese was steady to-day. The quotations from Liverpool to-day, as reported by cable are 58s@0s. We quote:

State factory, fancy, white, per pound	12 a12½
State factory, fancy, colored, per pound	.. a12
State factory, full cream, choice, per pound	11½a11½
State factory, fair to prime, per pound	10½a11
State factory, ordinary, per pound	9½a10
State factory, part skims, choice, per pound	10 a10½
State factory, part skims, fair to good, new, per pound	8½a 9½
State factory, skims, poor, per pound	7 a 8
State factory, full skims, per pound	3 a 5
Pennsylvania skims, per pound	.. a 3

DRIED FRUITS AND NUTS.—Evaporated apples are quiet. Raspberries are easy. Fancy peaches are in good demand. Fancy and prime peanuts are in good demand and firm. We quote:

Apples, evaporated, fancy, per pound	6 a 6½
Apples, evaporated, choice, per pound	5½ ..
Apples, evaporated, ordinary to good, per pound	4 a 4½
Apples, sun-dried, per pound	3 a 4
Raspberries, evaporated, per pound	14 a14½
Raspberries, sun-dried, per pound	13 ..
Cherries, per pound	9½ a10
Blackberries, per pound	2½ a 3
Huckleberries, per pound	9 a 9½
Peaches, Delaware, peeled, fancy, per pound	18 a20
Peaches, North Carolina, per pound	.. a10
Apricots, California, per pound	6 a 8½
Peanuts, fancy, per pound	4½ a 4½
Peanuts, prime, per pound	3 a 3½
Peanuts, farmers' grades, per pound	2½ a 3½
Peanuts, shelled, per pound	3½ a 4½
Peanuts, shelled, Spanish, per pound	4½ a 6½

EGGS.—The market was weak in the early part of the day; but a firmer feeling prevailed later as more sales were made. We quote:

Eastern, choice, per doz	.. a13½
Western, choice, per doz	.. a13½
Southern, choice, per doz	.. a13½
Southern, new laid, fair to good, per doz	12½a12½
Duck eggs, Maryland, per doz	25 a26
Duck eggs, Southern, per doz	23 a24
Duck eggs, Western, per doz	24 a25
Goose eggs, Western, per doz	60 ..
Goose eggs, Southern, per doz	55 a60

FRESH FRUITS.—The market for apples is quite steady. Fancy oranges are in good demand and firm, but poor fruit is dragging. Grape fruit is steady. Choice strawberries meet with ready sales. We quote:

Apples, Baldwin, State, per double-head barrel	$3 25a3 50
Apples, Baldwin, poor, per barrel	1 25a1 50
Apples, Greening, State, per double-head barrel	2 00a2 25
Apples, Greening, poor, per barrel	1 25a ..
Apples, Spy, per double-head barrel	2 50a3 00
Cranberries, New Jersey, prime, per crate	1 00a1 50
Cranberries, New Jersey, ordinary, per crate	50a 75
Oranges, Indian River, selected, per box	3 75a4 00
Oranges, Indian River, good to choice, per box	2 75a3 50
Oranges, Naval, per box	2 50a4 00
Oranges, Florida, bright, straight lines, per box	2 50a2 75
Oranges, Florida, bright, 176 and 200, per box	2 75a3 25
Oranges, Florida, bright, 226 and 250, per box	$2 25a2 75
Oranges, Florida, 126 and 150, per box	2 25a2 50
Oranges, Florida, russet, per box	2 25a2 75
Oranges, Florida, mandarins, per box	2 00a3 00
Oranges, Florida, tangerines, per box	5 00a7 00
Oranges, Florida, inferior, per box	1 50a3 00
Grape fruit, per box	1 50a3 00
Strawberries, Florida, choice, per quart	45a 50
Strawberries, Florida, fair to good, per quart	25a 40
Strawberries, Florida, poor, per quart	15a 20

FURS AND SKINS.—We quote:

	North and East.	South and Southwest.
Black bear	$30.00a$50.00	$8.00a$15.00
Cubs and yearlings	5.00a 15.00	4.00a 10.00
Beaver, No. 1	6.00a 7.00	5.00a 6.00
Otter	6.00a 9.00	5.00a 7.00
Marten, dark	2.00a 4.00	....
Marten, pale	90a 1.25	....
Mink	75a 2.50	40a 80
Red fox	1.50a 1.75	1.00a 1.40
Gray fox	75a 1.00	50a 75
Skunk, black	1.15a 1.30	1.00a 1.15
Skunk, half-striped	70a 80	50a 60
Skunk, stripod	30a 45	20a 30
Skunk, white	10a 20	10a 15
Opossum	15a 40	10a 30
Wildcat	40a 80	....
Muskrat, Spring	15a 18	12a 15
Muskrat, Fall	7a 10	7a 8

HAY AND STRAW.—The demand is not active. We quote:

Hay, No. 1, per 100 pounds	..a85
Hay, No. 2, per 100 pounds	75a80
Hay, clover, per 100 pounds	65a75
Hay, clover mixed, per 100 pounds	65a75
Hay, shipping, per 100 pounds	..a70
Hay, salt, per 100 pounds	..a50
Long rye straw, per 100 pounds	..a60
Short rye straw, per 100 pounds	55a60
Oat straw, per 100 pounds	45a55
Wheat straw, per 100 pounds	40a..

POULTRY AND GAME.—Live chickens and fowls are steady. Philadelphia fancy and choice broilers and roasting chickens are scarce and very firm. Fowls are very slow. Turkeys are also slow. Capons continue firm. Ducks and geese are barely steady. Tame squabs are rather quiet. Wild ducks are slow. Choice snipe and plover are steady, but inferior birds are dragging. We quote:

LIVE POULTRY.

Geese, Western, per pair	$1 37 a$1 87
Geese, Southern, per pair	1 25 a 1 37
Turkeys, per pound	13 a 14
Ducks, Eastern, per pair	80 a 1 12
Ducks, Western, per pair	75 a 1 00
Chickens, Western, per pound	.. a 13
Chickens, Southern, per pound	.. a 13
Fowls, Western, per pound	.. a 13½
Fowls, Southern, per pound	.. a 13½
Roosters, mixed, per pound	8 a 8½

DRESSED POULTRY.

Chickens, Western, broilers, frozen, per pound	18 a22
Chickens, frozen, prime, per pound	12 a14
Chickens, frozen, poor to fair, per pound	10 a11
Fowls, State and Pennsylvania, per pound	13 a13½
Fowls, Western, iced, per pound	.. a 3
Fowls, Western, dry-packed, per pound	13 a..
Fowls, Western, poor to fair, per pound	12 a 2½
owls, frozen, per pound	12 a13
Fowls, frozen, inferior to fair, per pouud	9 a11
Old roosters, per pound	9 a 9½
Old roosters, frozen, per pound	8 a 9
Capons, large, per pound	23 a25
Capons, medium weights, per pound	21 a 2
Capons, Western, mixed weights, per pound	18 a23
Turkeys, young, choice, per pound	16½a17½
Turkeys, young toms, prime, per pound	14 a15
Turkeys, old toms, per pound	12 a1
Turkeys, mixed weights, per pound	14 a15½
Turkeys, fair to good, per pound	10 a11
Turkeys, frozen, prime, per pound	15 a16
Turkeys, frozen, medium, per pound	12 a13
Ducks, Western, prime, per pound	14 a16
Ducks, Western, inferior to fair, per pound	8 a12
Ducks, frozen, Philadelphia, per pound	18 a19
Ducks, frozen, Western, prime, per pound	15 a16
Ge se, Western, prime, per pound	8 a10
Geese, Western, inferior, per pound	4 a6
Geese, Western, frozen, per pound	10 a12

VEGETABLES.

The large receipts of domestic potatoes have further weakened the market. Sweet potatoes are firmer. Red onions are dull, but yellow and white onions are firm. Florida cabbage is more plentiful and easier. String beans are easier. Green peas are barely steady. Lettuce is very irregular in quality and price; fancy qualities of lettu e are very firm. Spinach and kale are scarce to-day. Choice tomatoes sell readily. We quote:

Potatoes, State, Rose, per 180 pounds	$1.25a$1.37
Potatoes, State, Burbank, per 180 pounds	1.12a 1.25
Potatoes, State, Hebron, per 180 pounds	1.25a 1.37
Potatoes, State, fair to good, per 180 pounds	1.00a ....
Potatoes, New Jersey, Peerless, per barrel	1.00a 1.12
Potatoes, New Jersey, Blush, per barrel	1.00a 1.12
Potatoes, New Jersey, inferior, per barrel	75a 90
Potatoes, Michigan, Rose, per barrel	1.25a 1.37
Potatoes, Michigan, Hebron, per barrel	1.25a 1.37
Sweet potatoes, New Jersey, per barrel	1.25a 2.25
Sweet potatoes, Vineland, per barrel	2.25a 3.00
Onions, Orange County, red, per barrel	1.50a 1.75
Onions, Orange County, yellow, per barrel	2.00a 2.50
Onions, Connecticut, red, per barrel	1.75a 2.00
Onions, Connecticut, white, per barrel	4.00a 6.00
Onions, Connecticut, yellow, per barrel	$2.25a 2.75
Onions, Western, yellow, per double-head barrel	2.00a 2.50
Cabbage, Long Island, per 100	3.00a 5.00
Cabbage, Florida, per barrel crate	2.50a 3.00
Turnips, Canada, Russia, per barrel	60a 80
String beans, Southern, per crate	2.00a 3.50
Spinach, Norfolk, per barrel	2.75a 3.25
Kale, Norfolk, Scotch, per barrel	2.00a 2.25
Kale, Norfolk, sprouts, per barrel	1.75a 2.25
Lettuce, choice, per barrel	5.00a ....
A paragus, Charleston, choice, per dozen bunches	7.00a10.00
Asparagus, Charleston, medium, per dozen bunches	3.00a 4.00
Green peas, Florida, per crate	1.50a 3.50
Celery, Long Island, per dozen bunches	1.00a 2.00
Celery, Florida, per dozen roots	60a 90
Celery, New Orleans, per dozen roots	75a 90

SUNDRIES.—We quote:

Beeswax, Western, pure, per pound	27a28
Beeswax, Southern, pure, per pound	28a29
Honey, white clover, 1-pound boxes, per pound	12a13
Honey, white clover, 2-pound boxes, per pound	10a12
Honey, white clover, inferior, per pound	8a10
Honey, buckwheat, per pound	7a 9

WOOL.

BOSTON, March 30.—The market is in a steady position, with a fair amount of activity for this season of the year. There is no increase reported in the amount sold, and buyers have not been so plenty. Prices remain on the same low basis as last reported and the feeling is that bottom has been touched. Stocks of domestic wool are materially reduced and some kinds are quite scarce. Many lots are being accepted by buyers who in the Autumn passed them by as undesirable. Holders of wool continue to be free sellers, and buyers are only taking for immediate wants. There is no speculation, and the market is still a buyers' only. Some dealers are hopeful and predict better times soon, but how and when they are going to come they cannot tell.

The feature of the market has been the large arrivals of Australian wools, the total being a little over 13,000 bales. Of this amount only about 2,500 came on the market, as most of the wool was sold to arrive and p rt is owned by the mills. There are about 12,000 bales more on the way here. These large arrivals have more or less of a depressing effect upon the market, but there is no material change to report in the situation. The situation here depends upon the opening of the London sales this week. If a decline is reported holders of this wool will find it hard work to keep prices on their present basis. If prices should go lower there is no doubt that a large amount of thes wools would be bought for this market. The demand is not so active as last reported, but a fair amount is being taken, the total being about 475,000 lb. Prices in the grease range from 31@41c, as to quality. On a scoured basis a fair Port Phillip combing, suitable for a 60 yarn, can be had at 65c, with some choice 70s at 73@75c ₩ lb. Crossbreds are not very plenty, and have a quiet demand, good lots costing 65c clean. Montevideo wools are being offered at 27@28c, to cost 60@62c clean. The market for carpet wools is steadier, and not so much in the buyers' favor as it was. The demand, however, is not very active, and sales are made at old prices. The supply is not large, and as the new wools will not be along for some time, there is no desire on the part of the holder to force sales.

There is no improvement to report in the general situation of domestic fleeces. The market for all kinds of washed fleeces is unsatisfactory. Ohio and Pennsylvania fleeces are dull and easy, and it is hard work to obtain full values.

Wool is well cleaned up in Ohio, some second-hand lots selling there this week at 27c. The amount of Michigan wool sold during the week is small.

In Territory wools a fairly active demand is reported.

California wools are having a fair sale, with holders desirous of closing out before the new clip arrives.

Quotations follow:

Ohio and Pennsylvania Fleeces: No. 1 fleece, 34c; X and above, 27c; XX and above, 28@28½c.

Michigan, Wisconsin, &c.: Michigan X, 25@26c; Michigan No. 1, 33c; New York, New Hampshire and Vermont X, 25@25½c; New York and New Hampshire No. 1, 31@32c.

Combing: Kentucky ¾ blood, 26@27c; Kentucky ¼ blood, 25@26c; Indiana and Missouri ¼ blood, 24@25c; Indiana and Missouri ½ blood 26c; No. 1 Ohio, 32@33c; No 2 Ohio 34c; No 1 Michigan 32@33c; No 2 Michigan 33c.

Delaine Wools: Ohio, 32@33c; Michigan fine, 30@31c

Territory Wools: Montana fine, 15@17c; Montana fine medium, 18 @ 0c; Montana No. 2 medium, 21@22c; Wyoming, Utah, and Colorado fine, 13@15c; Wyoming, Utah, and Colorado fine medium, 16@19c; Wyoming, Utah, and Colorado No. 2 medium, 20@22c.

Southern Clothing Wools: Georgia, 25@25½c; Kentucky ¼ blood clothing, 24@25c; Kentucky ½ blood clothing, 26c.

Texas and Southern Wools: Texas Spring medium (12 months), 21@22c; Texas Spring fine, 18@20c; Texas Spring fine (six to eight months), 17@19c; Texas Spring medium (six to eight months), 19@21c; Texas Fall, 17@21c.

Kansas and Nebraska Wools: Fine, 14@18c; medium, 20@21c; carpet, 13@14c.

Unwashed and Unmerchantable Wools: Michigan and Ohio fine unwashed, 17@19c; Ohio and Pennsylvania unmerchantable, 21@23c; Michigan unmerchantable, 19@20c.

California Wools: Spring Northern, 21@22c; middle county, Spring, 17@19c; Southern defective, 14@17c; free Northern Fall, 17@20c; Southern do, 13@15c; defective, 9@11c.

Oregon Wools: Eastern, fair, 16@18c; choice, 19@20c; valley, 21@23c.

Montevideo wools nominal; fair to choice, 27@28c.

Cape wools, 26@28½c, as to quality.

Carpet wools: Aleppo, 14c; Angora, 14@14½c; Assyrian, 13@13½c; Cordova, 16½c; Donskoi Autumns, 19c; combings, 26@27c; carding, nominal, 22@24c; yellow, nominal, 21@23c; gray, nominal, 16@17c; black, nominal, 15@16c; greasy, 12½@13½c; East India, Vicanere, nominal, 31@32c; Candahar, nominal, 28@30c; Joria, nominal, 31@33c; Bagdad, white, nominal, 26c; do, colored, nominal, 21@23c.

GRAIN.

WHEAT—Speculative trading was again to a fair aggregate, though fitful, and the temper appeared more confident, as the cable advices were considered less unsatisfactory than had been anticipated, and the offerings here less urgent, and the close was about steady, on an advance for the day, on deliveries to July, of about ½@¾c, and on August and September of ¾c.—Contract wheat for April closed at 95c (range 95@95½c), May at 92c (range 91 9-16@92½c, subsequently at 92 1-16c, against 91½c last evening); June 90½c (range 89½@90½c). July at 90½c (range 90@90½c). August at 89½c (range 89½@90½c). September at 89c (range 88½@89½c), and December at 91½c (range 91½@91½).

CORN—Sold to a fair extent and again on a somewhat stronger basis, though closing tamely. Export demand again active (deliveries and shipments well into April). No. 2 corn, for April, closed at 43½c (range 43½@43¾c). May at 47½c (range 46½@47½c). June at 45½c (range at 45½@45¾c), and July at 46½c (range 46@46½c).

OATS—Were likewise a trifle dearer, on restricted offerings, but had only a moderate share of attention, some export call, noted, though bidding again reported unsatisfactory. No. 2 white oats, in elevator, 38½@38½c; do, April, closed at 36½c; No. 3 white oats, in elevator, at 37½c; No. 2 oats, in elevator, at 37c; No. 3 oats, for April, closed at 35½c; do, May, at 34½c (range 34½@34½c); No. 3 oats at 34½c; ungraded white at 37@41½c, and ungraded mixed at 34@36c.

COTTON.

NEW ORLEANS, March 30.—Cotton very steady; middling, 6¼c; low middling, 5¾c; good ordinary, 5½c.

GALVESTON, March 30.—Cotton dull; middling, 6 7-16c; low middling, 5¾c; good ordinary, 5½c.

SAVANNAH, March 29.—Cotton easy; middling, 6¼c; low middling, 5¾c; good ordinary, 5½c.

ESTABLISHED—1865.

GEORGE E. LEMON

PATENTS

ATTORNEY AT LAW AND SOLICITOR OF UNITED STATES AND FOREIGN PATENTS

LEMON BUILDING, WASHINGTON, D.C.

OPINIONS RENDERED AS TO THE NOVELTY OF INVENTIONS AND VALIDITY OF PATENTS. REJECTED APPLICATIONS PROSECUTED. ALL BUSINESS RELATING TO INVENTIONS AND PATENTS PROMPTLY ATTENDED TO. SEND FOR PAMPHLET.

TWO GOOD PAPERS,

THE AMERICAN FARMER

AND

THE NATIONAL TRIBUNE,

FOR $1.50 A YEAR.

We have arrangements for clubbing with THE NATIONAL TRIBUNE, of Washington, D. C., by which we can furnish the two papers at a reduced price. THE NATIONAL TRIBUNE is the leading soldier and family paper in the country. It has 12 large pages, seven columns to the page, filled with the best literary and historical matter, well illustrated. Leading writers contribute to it, and it has a very large circulation. Its average circulation last year was more than 130,000 copies a week. The subscription price is $1 a year. The subscription price of THE AMERICAN FARMER is also $1 a year. We will furnish the two papers for one year for $1.50. This makes more good reading matter for a small amount than can be gotten anywhere else. Send for a sample copy of THE NATIONAL TRIBUNE.

Address all communications to

THE AMERICAN FARMER,

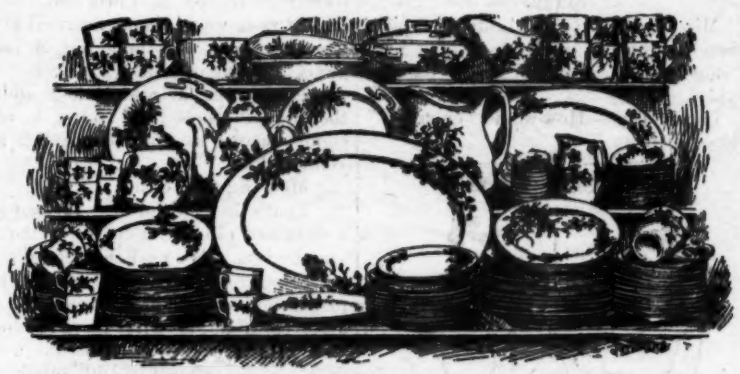
1739 New York Avenue, Washington, D. C.

GOLD BAND

DECORATED TABLE SERVICE

AT CUT PRICES.

Read Below the Four Selections to Suit Various Tastes and Needs.



We have secured for the benefit of our subscribers a splendid set of Decorated China with gold band around the edge of the pieces. It is made especially for us at the largest and best pottery in the United States. We buy in very large quantities, and thus we are able to supply this elegant ware as described below. We are able now to make a grand combination of four different sets to choose from.

Our China is highly ornamental, being decorated in three colors, with a design of fruits and flowers, in addition to which there is a gold band about the edge, as shown in the cut, which is made from a photograph of a set of the China we offer.

In order to save space, all the pieces are shown in one picture. The reader can readily tell which are referred to. The same plates, teapot, sugar-bowl, etc., go with all the sets, but in the larger offers more and more pieces are added to the tea set. All are of the same beautiful style of decoration.

First is

A 56-PIECE TEA SET.

It consists of 12 plates, tea size; 12 fruit saucers, teapot and cover, sugar-bowl and cover, a creamer, one bowl, one dozen tea cups and saucers to match, one bread plate, and one cake plate.

DINNER AND TEA SET COMBINED, 84 PIECES.

This beautiful set comprises 12 breakfast plates, 12 tea plates, 12 cups, 12 saucers, 12 fruit saucers, 12 individual butter plates, two cake plates, one teapot and cover, one sugar-bowl and cover, one creamer, one slop bowl, one large meat platter, one large and stylish gravy-boat, and one large vegetable dish and cover, in all **84 Pieces,** making a complete dinner or tea set for any table.

EXTRA DINNER AND TEA SET COMBINED, 100 PIECES.

This set is the same as the 84-piece set, with the addition of the following beautiful and useful articles, viz: 12 pie plates, one pickle-dish, one water-pitcher, and two bakers, or uncovered vegetable dishes, in all 100 pieces.

GRAND EXTRA DINNER AND TEA SET COMBINED, 125 PIECES.

This the same as the 100-piece set described above, with the addition of the great turkey platter and one dozen after-dinner coffee cups and saucers to match.

This makes the grandest China premium ever offered entire by us or any other publisher, and at a price below that possible to anyone else.

HOW TO SECURE IT.

First, the Tea Set. We will send this beautiful 56-piece tea set, by express or freight, for $6.25, or for a club of 10 yearly subscribers and $2 additional; or we will give it free for a club of 20 yearly subscribers at $1 each.

The 84-piece dinner and tea set combined, will be sent to any address in the United States as a Premium for a Club of only 10 subscribers for one year and $3 additional, or for a Club of only 20 subscribers for one year and $1.50 in money additional; or we will sell it outright for $8.10. We prefer the Club.

The 100-piece extra dinner and tea set combined will be sent to any address in the United States as a Premium for a Club of 10 yearly subscribers at $1 each and $5.75 added; or for a Club of 20 yearly subscribers and $3 added; or *free* as a Premium for a Club of 33 yearly subscribers. For sale at $10.35.

The grand extra combined dinner and tea set of 125 pieces we will send to any address in the United States as a Premium for a Club of 10 yearly subscribers and $8.75 added; for a Club of 20 subscribers and $4.40 added. Sent as a *free* gift to a Club-raiser who sends in a Club of 45 yearly subscribers. For sale at $13.50.

The China will be carefully boxed and shipped by express or freight, the receiver to pay charges of transportation. Fast freight takes a little more time than express, but it is preferable, unless the goods are needed in special haste; because the charges are very much lower by freight, and, in fact, except to very distant points, amounts to but a trifle.

Address

THE AMERICAN FARMER CO.,
1729 New York Avenue, Washington, D. C.

"THE HONEST FARMER."

A Beautiful and Durable Watch, With a Nickel-Plated Chain Thrown In.

A GRAND PREMIUM FOR CLUB-RAISERS.

This is the name we give to the famous Elgin Watch that is best adapted to the use of farmers in every part of the United States. This watch is complete in every way, and represents the triumph of American skill and genius. The case is made of solid nickel silver, a composition which is handsome and more durable than coin silver. The face is protected by a heavy crystal of beveled plate glass strong enough to bear a great weight. It winds and sets at the stem and need never be opened. The works are beautifully finished, and contain seven handsome jewels, compensating expansion balance, patent safety pinion, improved plain regulator, and other great improvements suggested by years of study and experiment. The parts are interchangeable, and are made of the most highly-tempered metals. Some of the parts are produced with such difficulty that they are worth ten times their weight in gold.

No farmer or farmer's son should be without this watch, which keeps the time so accurately that it needs to be compared with a regulator only once in many months. We have contracted for a large number of these watches, and to make them move quickly we have determined to furnish a chain with each watch. These chains will not be sold separately. They are made of nickel-plated steel and are ornamented with a charm. Thousands of farmers will, of course, wish one of these watches, and our immense supply will probably be exhausted within a few months, so club-raisers and purchasers should allow no time to pass before they try to get one for a club or for cash.

For the present we offer this watch and chain for a club of 10 subscribers and $2.50 added money—$12.50 altogether—or we will send both watch and chain (without the paper) to any address by insured mail for $5.60. With the paper, one year, $6.25.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

PATENT LINK DOG COLLAR.

We have secured for the benefit of our subscribers the most improved pattern of Dog Collar.

It is a patent safety-link, so constructed that it cannot be pulled open by a dog tugging at the chain. At the same time it is not soddered. We have it made of four different kind of materials, all same style link, as shown in the cut. It comes 12, 14, or 16 inches long, according to the size required.

First. Is a solid Aluminum Collar, made of the new metal, having much the appearance of coin silver, but almost as light as pine wood.

We will send this Collar free for a club of 4 subscribers, or we will send the Collar and the paper one year for..$1.60
For sale alone..... 1.35

Second. The same style of Collar in solid nickle silver will be sent free as a premium for a club of 3 subscribers, or sent with the paper one year for..... $1.25
For sale alone..... 1.00

Third. The same style of Collar in nickle-plated steel sent free for a club of 2 subscribers, or sent with the paper one year for..... $1.10
For sale alone..... .90

Fourth. The same style of collar in polished steel, for sale with the paper one year for..$1.05

This chain is not for sale except in connection with the paper.

In ordering be sure and not only specify the material of the collar you want, but also the length, whether 12, 14, or 16 inches.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

THE FARMERS'

SPECIAL REFERENCE BOOK

A 520-Page Book and The American Farmer One Year for Only $1.30.

We have arranged with the publishers of "Youman's Dictionary of Every-Day Wants" to club with THE AMERICAN FARMER. The Dictionary is a closely-printed book of 520 pages, containing articles under 20,000 heads.

It embraces recipes of known merit upon every conceivable subject, such as housekeeping, medicines, farming, stock raising, tree culture, gardening, mining, building, hunting, trapping, taming, stuffing birds, cookery, toilet, farriery, painting and papering, working metals, navigation, sailing, steam engines, boilers, pottery, charcoal, bricks, drainage, horse-training and doctoring, etc.

It is useless to attempt to enumerate even a hundredth part of this great cyclopedia, which covers every branch of the work and wants of daily life.

It is the result of the life work of the late Prof. Youman, who probably had more general knowledge about common things than any American since Dr. Franklin.

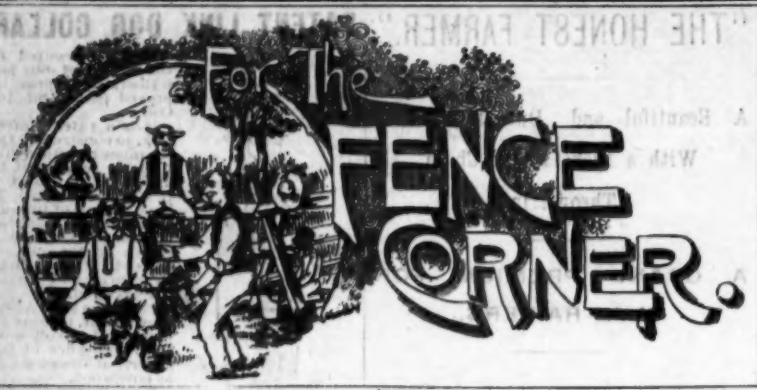
We can dispose of this wonderful book in only one way—that is, in connection with a subscription for THE AMERICAN FARMER for one year. They will both be mailed, postpaid, to any address for $1.30. The book is equal to a great library. We feel safe in saying that no collection of 1,000 volumes could be made that would contain the amount of useful information which has been gathered together in this one volume by Prof. Youman.

Owing to a technicality in the postal laws, it cannot be sent in this combination except in a paper cover. It will well pay, however, the recipient to have it bound in cloth. The cloth-bound edition, containing exactly the same matter, will cost at any bookstore about $4.00.

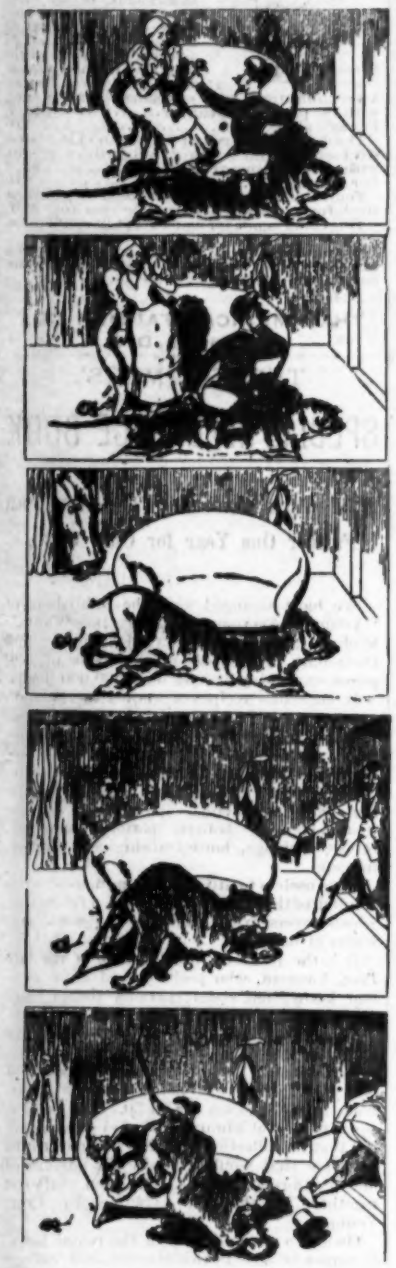
We hope our readers will not fail to take advantage of this remarkable opportunity, the like of which will probably not occur again in years. Remember, only $1.30 for both the book and the paper for one year.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.



New Use for a Tiger Rug.



An Impersonal Regard.

Minister—Do you love the truth?

Scapegrace—Yes, if it isn't told about me.—*Life.*

Reduced Rates.

Bummy (to restaurant cashier)—D'ye make any discount for cash?

Cashier—We throw off the lickin' that goes wid other terms.—*Truth.*

A Peculiarly Delicate Mission.

"I have come to you, sir, on a delicate mission," said the young man as he sat down on the edge of a chair and looked uncomfortable, as young men sometimes will.

The old gentleman laid down his pen and looked curious.

"What is it?" he asked.

"Well, sir, you have two beautiful daughters," explained the young man.

"I have two daughters," admitted the old gentleman.

"I presume you have noticed that I have been frequently at your house," suggested the young man, diffidently.

"I have noticed it."

"Thank you, sir. I have been paying attentions to—in fact, sir, frankly, I—I have been making love to one of your daughters."

"I presume so. And you would like to"——

The old gentleman hesitated, and the young man eagerly went on:

"Yes, sir; that's it exactly. I proposed to one of them last night, and I—I"——

"Which one?" interrupted the old gentleman. "Both are splendid girls, and I should hate to lose either, but—which one is it?"

"Don't you know?" asked the young man.

"Certainly not. I have seen you with both."

The young man reached for his hat.

"I thought you might," he said. "I've been very attentive, and I was sometimes in doubt myself, seeing they're twins, but I got along all right until I proposed. And now—now—hang it, sir, if you don't know which one accepted me, I don't, and I've got to begin all over again."—*Chicago Daily Tribune.*

His Suspicious Appearance.

Trotter (fretfully)—I have lost nearly 20 pounds since I last saw you.

Foster—But, my dear fellow, don't blame me. I didn't find them.

An Opening at Last.

Employer—Mr. Tops, I have long observed with approval your assiduity and devotion to business, and I am now about to test your abilities in a new capacity, in which I feel sure you will acquit yourself with credit to the house, and—er——

Mr. Tops (highly delighted)—I—I—I shall do my best, sir!

Employer—As I was about to say, Mr. Tops, the porter is sick this morning, and I shall have to ask you to sweep out the office.—*Puck.*

Stagy.

Miss McMuffy (with theatrical aspirations)—I wish I could think of a good "stage name" that no actress has yet taken.

Cousin Tom—How would "Omnibus" do.—*Truth.*

The Knave Speaks.

"I came within an ace of marrying an heiress once, when the father interfered."

"And then?"

"I got the deuce instead!"

A Cruel Rejoinder.

"Here, Tom, I want to show you my family tree. Now, don't get off that old joke and say its a chestnut."

"Certainly not, its not old enough to be so dignified."

The Fashionable Penitent.

Ernestine—Why are you so glad that Lent has come?

Celestine—Because the doctor said the only thing the matter with poor Fido was that he ate too much meat.—*Judge.*

Too Suggestive.

Bank President—What is the new watchman's name?

Cashier—Jimmy.

Bank President—Discharge him at once!—*Judge.*

More young men are hit by the boomerang of over-smartness in making money than are killed by the cars.

A Night Clerk's Story.

"There was a tall, thin, kinder sad-looking chap put up here about three weeks ago who was a high roller from 'way back. The very first night he got out on the Bad Lands and came back shouting glory. It took two porters and all the bell boys to get him upstairs to bed. The next night he went out to a chicken fight and licked a couple of hackmen on the way home. He was pretty warm people, I tell you!"

"Rather."

"The next night—it was 1 a. m.—he came in, loaded, as usual. There was a theatrical troupe in town, and two of the actresses were about retiring as he passed upstairs, whooping like a lot of Sioux chasing a sutler's wagon. He rapped on the actresses' door, and as they wouldn't open it, of course, he blew cigaret smoke through the keyhole and yelled, 'Fire!'"

"Made a panic, didn't it?"

"That's no word for it. Looked like a sheet and pillow-case party in an insane asylum. We read the riot act then, but he put up a warm talk with the proprietor and squared it somehow. He was a velvet talker, as sure as you're born. The night after he coaxed me into a dice game and skinned $160 outer me quicker'n a wink."

"Made his expenses, eh?"

"Exactly. Well, the next morning he came down with his head swelled and his grip packed. He said he hated to leave us, as he'd had such a quiet, pleasant, genial sort of a time, but they called him and he must away. So I made out his bill."

"Made it pretty large, too, didn't you?"

"'Bout the usual—but wait. I handed him his account, and what do you think he said?"

"Can't imagine."

"Why, he said, 'Great Scott! don't you make a reduction to clergymen?'"—*San Francisco Examiner.*

If Ye'll Lave Me Alone.

O Larry, now Larry, it's no use a-talkin',
  Ye're too bould enthirely to suit a girl's taste!
Ye're niver content wid a shmile an' a cartsey.
  An' here ye are now wid yer arm round my waist!
Ye bodther my life out wid beggin' for kisses,
  An' the more ye do get, why, the bouldher ye're grown;
And whin I don't give 'em, it just makes no differ—
  Ye take 'em; but, Larry, now lave me alone.

Faith, what would the misthress say, man, did she find ye
  Forever a-foolin' round me at my work?
Ye're a tyrant that take what you happen to fancy—
  No betther, I'll swear, than a haythen-born Turk!
O Larry, my lad, ye've the tongue for the blarney!
  Sure, now, 'twould be meltin' the heart of a shtone;
Wid both hands in the dough I kin niver resist ye—
  Ye know it—an' yit ye won't lave me alone!

O Larry, now Larry, be good an' shtop tayzin'!
  There's somebody comin', quit foolin', and hush!
An' will I say "yes," will I have ye? O Larry,
  Ye'd be charmin' the very birds off of the bush!
I must name a day soon when the banns shall be published.
  Kin I niver escape ye; och hone, lad, och hone;
Must I marry ye whedder or no; ye're a villain:
  But, Larry, I will—if ye'll lave me alone!

M. N. B.

A Reason.

"What makes the aristocracy of England so exclusive, I wonder?"

"Their debts, most likely. I know lots of tradesmen who refuse to have anything to do with them."—*Judge.*

AN ALL-AROUND SHOTGUN

FOR THE FARMER!

The Best Double-Barreled Breechloader for the Money.

THE GUN AT WORK.—THREE DOWN AT ONE SHOT.

100 CENTER-FIRE SHELLS FREE.

There is no use in buying a high-priced gun when one just as good, as far as bringing down game is concerned, may be had for one-quarter of the money.

THE AMERICAN FARMER has arranged for a special gun of wonderful shooting qualities, and at the same time for a very low price.

This splendid gun is a double-barrel breechloader, with rebounding hammers, back-action lock, large strikers, pistol grip, rubber butt, checkered grip, and fore-end. The stock is oiled walnut, the frame and trimming blued steel. Ten or 12 gage, according to choice.

We will send this magnificent gun as a premium for a club of only 10 subscribers at $1 each and $10 additional. More than that, we will give free with the gun 100 good center-fire shells and also a canvas cartridge-belt. Or we will sell the gun, and throw in the 100 shells and cartridge-belt, for only $14.

No such outfit was ever before offered in this country for the money.

This gun, shells and belt will be securely boxed and sent by express, the receiver to pay the charges, whether sent as a premium or purchased.

The gun market is on the upward turn. We reserve the right to raise the price within a month, if the market continues to advance.

Address THE AMERICAN FARMER CO.,

Washington, D. C.

WHO WILL BE OUR NEXT PRESIDENT?

NEELEY'S GREAT HISTORICAL CHART.

POLITICAL AND UNITED STATES MAP.

A Double Wall Map, 5 Feet 6 Inches by 3 Feet 10 Inches, Mounted on Rollers Top and Bottom, Ready to Hang.

BETTER THAN AN ENCYCLOPEDIA.

A Panorama of American History Printed in Eleven Beautiful Colors.

LARGEST--LATEST--BEST.

WORTH $5 Given with one year's subscription to THE AMERICAN FARMER for $1.30, Express paid by us.

IT TELLS

How many Presidents we have had and politics of each.
What party George Washington represented.
What Presidents died while in office.
How many Presidents served two terms.
Which candidate received the largest number of votes and was defeated.
When each political party was organized.
How many Congresses have convened, and the political complexion of each.
The number of States in the United States, and the one having the most miles of railroad.
How many political parties have existed in the United States.

A Complete History of Our Government by Administrations, Political Parties, and Congresses, from Washington to Harrison.

On One Side the Latest U. S. Map, Showing all States, Counties, Railroads, and Towns (Price Alone $5.00), and on the Other Side:

A Diagram Showing all the Political Parties. 11x26.
A Diagram Showing all Presidents and Cabinets. 11x26.
A Diagram Showing Political Complexion of each Congress.
A Diagram Showing Creeds of the World. 12x10.
A Diagram Showing Standing Armies of each Nation. 12x10.
A Diagram Showing Naval Tonnage of each Nation. 12x10.
A Complete Map of the World. 11x26.
A Map of Central America. 10x12.
A Map of Alaska. 10x15.
A Map of South Africa. 10x10.
A Map of Upper Nubia and Habesh or Abyssinia. 10x10.
A Map of Persia, Afghanistan, and Beloochistan. 10x12.
A Complete Map of the Solar System; best ever made. 10x12.
The Names of all Cabinet Officers, with length of term.
Pictures of all the Presidents from Washington to Harrison.

IT ALSO GIVES IN BRIEF:

The History of the United States Government by Congresses.
The History of the United States by Administrations.
An Analysis of the Federal Government.
Issues of all Political Parties.
The History of all Political Parties in this Country.
The Popular and Electoral Vote for each Candidate.

The largest and latest United States map, printed in colors, covers the entire back and is the best published. It alone sells for $5.00. The complete Reversible map (printed on both sides) is 5 feet 10 inches by 5 feet 6 inches, mounted on rollers, top and bottom, with tape on sides.

This map should be in every library, office, and school, and is well worth the price ($5.00), as you will see by the above statements and recommendations.

This GREAT DOUBLE MAP is sent by express prepaid, and safe delivery guaranteed, to any address in the United States. It can be mailed, but it is much safer by express. Name your nearest Express office.

The money will be refunded to anyone not perfectly satisfied with the map. Understand fully, that no matter which offer you accept, all charges are prepaid by express or mail, and safe delivery and perfect satisfaction guaranteed or money refunded.

OUR OFFER:

We will send the Map, express charges paid, and a copy of THE AMERICAN FARMER, one year to anyone sending us $1.30. That is, for $1.30 we will send a Map and our Paper for one year, and as many Maps as you will send us new Subscribers and $1.30 each. We will furnish this Map delivered free to any subscriber of THE AMERICAN FARMER who will send us three new subscribers at $1.00 each, or $3.00 for the three copies for one year.

THIS MAP is not for sale, but is intended to help our subscribers who work for us in extending the circulation of THE AMERICAN FARMER.

THE AMERICAN FARMER,
1729 New York Avenue, Washington, D. C.

RUBBER
ROOFING

Is unequaled for house, barn, factory or out-buildings, and costs half the price of shingles, tin or iron. It is ready for use and easily applied by anyone. Write at once for estimate and catalogue.

FOR SHED OR HENHOUSE. On steep or flat surface. Excellent roof complete. $2.00 Per 100 square feet. $2.00

Send stamp for samples, mentioning AMERICAN FARMER, and state size of roof.

INDIANA PAINT AND ROOFING CO., 42 West Broadway, New York.

THREE STYLES. FIVE SIZES. Thousands sold.

MORGAN Spading Harrow

The Best all round Rotary Harrow and Pulverizer. NO EQUAL for Fall plowed land, Stubble, Vineyards and Peach Orchards. Leaves no furrow or Ridge. Angle of teeth adjustable. Send for Catalogue. Mention this Paper. Address

D. S. MORGAN & CO. Brockport, N.Y.

1838.—FIFTY-FOUR YEARS.—1892.

300 ACRES.

NUT & FRUIT TREES. Barry's Giant and Pedigree Japan Persimmons; Japan, French, and Persian Walnuts; Almonds, Filberts, Pecans, &c.

VALUABLE NEW PEARS. Japan Golden Russet, Idaho, Lincoln Coreless, Le Conte, Gieserella, Vermont Beauty, Seckel, Bosc, &c.; also Shumard Red Oak, Chestnuts, Lombardy Poplars, Norway Maples, Evergreens, Hedge Plants, Shrubs, Vines, and other valuable Novelties. Immense stock of HEADY TIN Tags and all Small Fruit Plants. Fruit, Shade and Nut Trees. ORNAMENTAL SHRUBS, VINES, &c. Illus. Descriptive Catalogue free.

Wm. PARRY, POMONA NURSERIES, Parry, New Jersey.

GRAPE VINES

NIAGARA and all new and old varieties. Extra Quality. Warranted true. Low-est rates. Descriptive Catalogue free. Also the new Black Grape EATON.

Also other SMALL FRUITS. New Descriptive Catalogue Free.

T. S. HUBBARD CO., FREDONIA, N.Y.

SPRAY YOUR FRUIT TREES & VINES

Warmth Fruit and Leaf Blights of Apples, Pears, Cherries, Grapes and Potatoes. Best Quality. Guaranteed. Lowest prices. Latest improved Spraying Outfits. EXCELSIOR SPRAYING OUTFITS.

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all the above and a full line of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address W. M. O'HAIL, Quincy, Ill.

1,300 BUSHELS OF POTATOES

G. W. BRAMBLE, Fair Lee, Kent Co., Md., says:

With 900 pounds of **Powell's Green Bog Fertilizer for Potatoes**, on 1¼ acres of land, he raised 1,300 bushels smooth, good sized potatoes. When quantity of Fertilizer and quality of land is considered, this is largest crop of potatoes ever raised in the world. Why not raise big crops of potatoes? We can tell you how to do it, and how to prevent Potato Rot and Blight.

Send for Pamphlet.

W. S. Powell & Co.,

Chemical Fertilizer Manufacturers,

Baltimore, Md.

HENCH'S IMPROVED STEEL CULTIVATORS

With Double Row Corn Planter and Fertilizer complete in one machine. Awarded Medals since 1876. OVER 50 of the SAME SIZES Thousands in use giving entire satisfaction.

Agents wanted. Catalogue free. Mention this paper.

HENCH & DROMGOLD, York Pa.

Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Will do it. Thousands in successful operation. Simple, Perfect and Self-Regulating. Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Send 6c. for Illus. Catalogue. GEO. H. STAHL, Quincy, Ill.

THE AMERICAN FARMER, Washington, D. C., is the oldest agricultural paper in the United States, and it is prepared to make it the very best.

ARTIFICIAL LIMBS

WITH RUBBER FEET AND HANDS.

Durable in Construction, Natural in Action, Noiseless in Movement.

And the MOST COMFORTABLE for the wearer. It is not unusual to see a farmer working in the fields with an artificial leg, or a brakeman applying his brake on a fast running train, or an engineer with hand on the throttle, or a fireman, carpenter, mason, miner, in fact person in every employment, wearing one or two artificial legs with rubber feet.

Over 12,000 artificial limbs of the Marks' patent in daily use. Established over 20 years. Indorsed and purchased by the United States and many foreign governments. By a formula applicants can supply all the measurement necessary to secure a fit while they remain at home. One half of the legs and arms furnished by us are made from measurements and profiles without our seeing the wearers. Fit always guaranteed. A treatise of 450 pages, with 250 illustrations and 1,000 testimonials, and a formula for measuring, sent free.

Address

A. A. MARKS, 701 Broadway, New York.

401 Varieties OF BEST SORTS OF Apple, Pear, Quince, Peach, Plum, Cherry, Raspberry, Blackberry, Currant, Grape Vine, Asparagus, etc. Also Chestnuts, Walnuts, Trifoliate Orange, Evergreens, Shrubs, Vines, Roses, Hedge Plants, Bulbs, Tree Seedlings and other Novelties. BERRIES

Send for Catalogue.

J. S. COLLINS & SON, Moorestown, N. J.

FRUIT EVAPORATOR THE ZIMMERMAN

The Standard Machine

Different sizes and prices. Illustrated Catalogue free. THE ELYRIA IRON WORKS CO., Cincinnati, O.

Small Business.

Many advertisers say, "Send stamp for circular"—petty business this—asking the public to share the cost of advertising. Think of it; you are expected to spend two cents for your own postage and two cents for return postage on circulars! THE BUCK-THORN FENCE CO., Trenton, N. J., don't do business that way. Send them your address on a postal card; they will send you sample, circular; write you a letter—all costing them about six cents.

"Best of Satisfaction."

The BUCK-THORN I ordered from you last spring is giving the best of satisfaction.

C. W. LOVE, Palmetto, Ohio

A LIVELY SCHOOL PAPER.

Popular Everywhere. Twenty-five cents a year. Sample free. Address

Greeley's Gusto, Friendsville, Md.

HANDY BOX OF MEDICINES.

Every fit of sickness can be warded off if treated in time with proper medicines. A feeling of discomfort and pain generally precedes every serious illness. In the interest of our readers and their families, we have collected in one medicine chest enough standard remedies to keep any family in perfect health for five years if they are properly administered. If your bowels are sluggish look out for peritonitis, typhoid fever, or some kindred disease, and take a few anti-constipation or cathartic pills. If you have headaches or feel oppressed after a good hearty meal, take an anti-dyspepsia pill. If you are generally rundown and feel listless, and especially if you are pale and thin, try a few iron pills. If you are generally disordered in your digestive regions, remember that you can straighten yourself out with a few liver pills. If your bones ache and you feel full of malaria, take a few quinine pills from our Handy Box. Don't forget that the little ailments just mentioned are merely the advance scouts of the thousand diseases that take men off.

This crowning blessing, wrung by patient and persistent effort from the grasp of the drug trust, will afford almost instant relief in all cases arising in any ordinary household. The price of this valuable box is $1, delivered free. The quinine pills alone are worth the amount, and the rest may be considered a premium from THE AMERICAN FARMER. Below we enumerate the contents of the box: 100 Quinine Pills; 100 Liver Pills; 100 Anti-Dyspepsia Pills; 100 Anti-Constipation Pills; 100 Iron Pills; 100 Cathartic Pills.

THE AMERICAN FARMER guarantees the above medicines to be absolutely pure and genuine in every case. Address

THE AMERICAN FARMER CO.,

Washington, D. C.

THE "SILVER CHICK."

PEPPER AND SALT.

No. 302.

Above is a reduced representation of the most pleasing table novelty going. They are made of American Sterling, heavily plated with pure silver. The plate is quadruple, and will last a lifetime.

One is for pepper and the other is for salt. They are filled through the cup which unscrews at the bottom, and the pepper and salt are shaken out through the top knot.

They are sent in a neat silk-lined box, postpaid, to any address with THE AMERICAN FARMER for.....$1.25

For sale alone, postpaid..... 75

Or sent free for a Club of 3 subscribers at $1.00 each. Address

THE AMERICAN FARMER CO.,

Washington, D. C.

A FANCY CUFF BUTTON.

This button is heavy rolled gold, richly chased. In the center is a beautiful diamondcent brilliant. It is one of the finest buttons of the season. We send a pair of these buttons for a club of only two subscribers, at $1 each. For sale at 50 cents.

THE AMERICAN FARMER CO.,

Washington, D. C.

Webster Pocket Speller and Definer of the English Language,

containing over 25,000 words. This work gives the correct orthography and definition of all the words in common use. The illustration gives a fair idea of the shape of the work being especially made to fit the pocket and bound in a style which makes it durable and elegant. This Speller and Definer is not reprint, but has been carefully prepared by competent hands to meet the general want for a book of this kind, and for the space it occupies has no superior in the publishing world; containing 200 pages, 4x6½ inches, bound in elegant American Russia Leather and Indexed.

Sent postpaid upon receipt of 50 cents. Address

THE AMERICAN FARMER,

Washington, D. C.

NICKEL SILVER TABLE WARE.

We have secured, for the benefit of our subscribers only, a line of Table Ware which for style and beauty cannot be surpassed at less than double the price elsewhere. It is a new thing, also, and most of our readers have, beyond doubt, never seen a specimen of it. It is called nickel-silver, and is a compound metal intended to take the place of the old-fashioned German silver. In place of the brassy look of the German silver it has a slight steely tint, by which alone it may be told from pure silver. It is very hard and very strong, at the same time of light weight. It takes a higher polish than silver, which it will retain until worn out. It is the same material clear through, there being no plate of one metal upon a base or core of another. It is 91 per cent. of pure nickel. Being too hard to stamp, they are cast and polished in the plain tip pattern. This is the pattern in which the old-fashioned Sterling spoon was made, and is familiar to all. Owing to the strength and high quality of the metal, they can be made with more slender handles than the plated ware, and for this reason the model of the Sterling silver spoon has been adapted to it. We are confident this ware will please our patrons, as it can be polished or scoured as much as occasion requires, and the same care is not necessary in handling it in the dish-pan as with plated silver.

A set of six tablespoons will be sent, postpaid, to any subscriber for.....$1.35

A set of six dessert spoons for..... 1.15

A set of six teaspoons for..... 80

A set of six forks for..... 1.35

A set of six dessert forks for..... 1.15

These sets all comprise six pieces. By the dozen they cost just twice as much as by the set of six. We will send as a free gift a set of teaspoons and tablespoons to anyone who will send us a Club of 6 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, and medium forks for a Club of 10 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, medium forks, and dessert forks for a Club of 13 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, dessert spoons, and medium forks, for a Club of 15 yearly subscribers at $1 each.

Or a set of each of the five articles for a Club of 10 yearly subscribers at $1 each, and $1.50 added money.

Any housewife who will order a set of this ware may rest assured that she will be the envy of her neighbors. Address

THE AMERICAN FARMER CO.,

Washington, D. C.